The Magazine of

STANDARDS

For Photographers—An Improved Tool to Find the Correct Photographic Exposure (page 173)

June 1955

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STANDARDS
Formerly Standardization

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MARGINAL NOTES

Through History with Standards—

Again history has turned up a series of amusing episodes related to standards. The first in a second series of cartoons, "Through History with Standards," is featured as this month's frontispiece.

For Vacation Photographers—

If you are an amateur photographer, or even a professional, turn to page 173. Whether or not you use an exposure meter, the American Standard Exposure Computer described there will interest you. Available in a new edition, its explanation of the factors that must be considered for correct exposure and its analysis of the light and atmospheric conditions that you will find in all parts of the world have been prepared by some of the country's top experts in the science of photography.

Cook of New York's Board of Education—

Louis J. Cook is responsible for purchasing, storing, and distributing the huge quantity of school supplies used in New York City (page 177). He has had a rich background of experience to help him carry out these responsibilities efficiently. As New York City's Director of Purchase during the war, he was charged with getting supplies needed to keep the city functioning, no easy task in those days of shortages. As part of this job, he also served as the city's liaison officer with the Government agencies.

When he refused to accept gasoline coupons in 5-gallon units for the 3 million gallons used by New York City every three months, he caused a furor. However, the problem was finally solved by setting up a system of blanket certificates for all large users. Later, when butter shortages were causing difficulty for city hospitals, he worked out a butter certificate release program that enabled all hospitals, not only those in New York City, to participate in the set-aside butter stocks of the Armed Forces. He has been Super-

intendent of School Supplies of the City's Board of Education since 1946.

Recognition for Henry Lamb—

The New York Chapter of the American Society of Safety Engineers has elected Henry Lamb, safety engineer on ASA's staff, as its chairman. Mr Lamb has been very active in the Society as well as in other organizations concerned with safety standards. Last year he was chairman of the program committee in charge of the highly successful Greater New York Safety Conference and Exhibition. More than 9,000 people were registered during the Conference.

Standards Engineers in the News—

Standards Engineers are making news. In this issue Madhu S. Gokhale (RCA), president of the Standards Engineers Society, tells why there is a need for this comparatively new professional society. He describes how the Society works and what it means to its members. Do the Standards Engineers Society and the American Standards Association compete with each other? This is a question frequently asked. Mr Gokhale explains the relationship of the two organizations with each other and in the standards field in general.

Also in the standards news is the Sixth National Conference on Standards. The three-day conference (October 24-26) is being held in Washington, D.C. Sponsors are the National Bureau of Standards and the American Standards Association. Theme is Government-Industry Cooperation. The preliminary program is well underway. Watch for details in the July issue.

Also in the July issue will be reports of the Spring Meeting of the Company Member Conference. Interesting papers on quality control, parts numbering, lubrication, and corrosion prevention, among others, were presented at the two-day conference in Milwaukee, Wisconsin.

This Month's Standards Personality

Walter A. Shewhart is one of those who "by some great and unique act of genius of an engineering nature has accomplished a great and timely public benefit." He became one of the few recognized as entitled to this distinction when he was awarded this year's Holley Medal by the American Society of Mechanical Engineers.

The "unique act of genius" to which the award refers is, of course, the "Shewhart Method" of using statistics and a control chart to check on variations in the quality of products during production. This method is known by Shewhart's name throughout the world.

First presented in his book "Economic Quality Control of Manufactured Product" in 1931, the method was put widely into effect during the war. A small committee of scientists worked the theory into practical form in three standards that were approved by the American Standards Association and published as American War Standards. This small group, representing both the Government and industry, traveled throughout the country to educate inspectors of the Ordnance Department in the use of the standards.

In the comparatively few years since Shewhart's Method was first described and put to use in World War II, it has become a profession in itself. The American Society for Quality Control, technical society in the field, held its ninth annual convention this year. In honor of Dr Shewhart, the Society has established the Shewhart Medal which is awarded annually for distinction in the field. His book is still recognized as the standard work on the philosophy of the statistical method of quality control. Dr Shewhart served as chairman of the Joint Committee for the Development of Statistical Applications in Engineering and Manufacuring from its organization in 1929 until it was disbanded in 1954. This was an organization for publicizing and promoting the control chart method. It was sponsored by the American Society of Mechanical Engineers, the American Society for Testing Materials, the American Statistical Association, the Institute of Mathematical Statistics, and the American Mathematical Society.

Dr Shewhart's bread-and-butter job is with the Bell Telephone Laboratories. He has been with the Laboratories since 1924. There he first specialized in the application of statistics in engineering, standardization theory, and practice of product quality control.

Since 1952 he has been concerned with a number of special projects as statistical consultant in the Mathematical Research Department.

Not content as scientist alone, he is also teacher-lecturer in statistical theory and applications at technical schools in all parts of the world; member of the Advisory Committee to the Institute for Research in the Management of Industrial Production, Columbia University; and at present editor of John Wiley & Son's Mathematic Statistics Series. His activities include membership in many mathematical and statistical groups. He has even found time to serve as president of both the American Statistical Association and the Institute of Mathematical Statistics. Very recently, in 1954, he was advisor on a quality control program for the Government of India.

Possibly the statistical method of quality control that bears his name can be called Dr Shewhart's hobby. He himself has an enthusiasm for it that cannot help but enthuse others with whom he comes in contact.

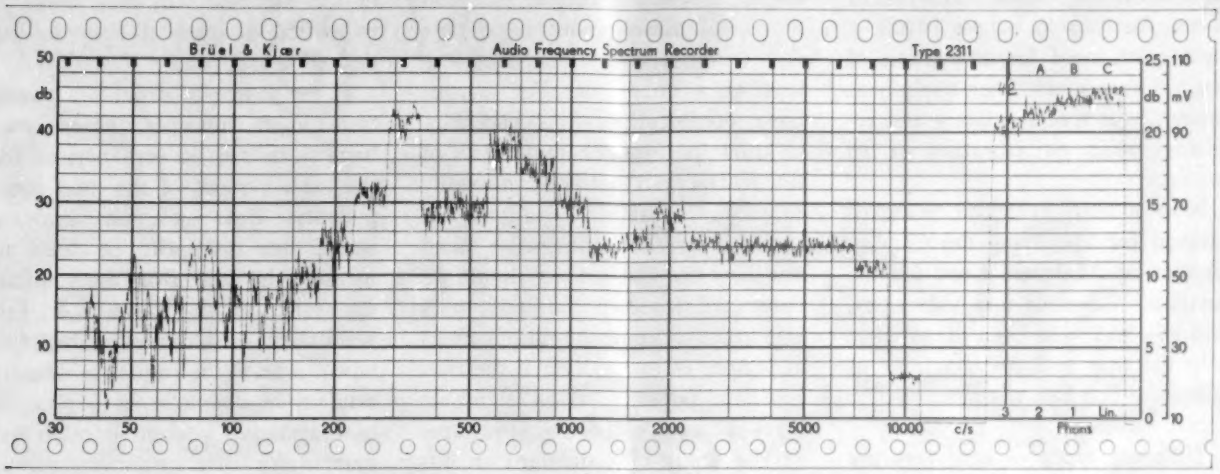
Many interesting notes about early standards have turned up since the last cartoon was published in the series "Through History With Standards." So interesting are these historical oddities that it has been decided to share them with readers of *The Magazine of Standards*. This cartoon inaugurates the second series of "Through History With Standards."

"Sixteen men, large and small, as they come out of the church, one after the other by chance, should place a shoe each before the other. This length is and should be a good common measuring rod."

THE precept above is taken from *Rechenbuechlin* ("Little Arithmetic Book") written in 1514 by the German mathematician and fellow-student of Copernicus, Jacob Kobelius (1470-1533). The volume appeared in 22 editions in the 16th century and had an important influence on mathematical thought of the time. It also started on its way a standard of length that is basic to our linear and area measurement and is much used at Churchill Downs and Pimlico — the rod or 16½ feet, 40 rods equalling one furlong, 8 furlongs totaling one mile, and 160 square rods making an acre.

Standards of measurement are made somewhat more accurately today. Industry and science require many standards and the most exact measuring apparatus to carry out calibrations down to one millionth of an inch, which is equivalent to one sixteenth of an inch in a mile.

While the National Bureau of Standards is the organization that provides the nation with a basis for accurate measurement, the American Standards Association has approved a number of methods of measurement as American Standards. Newest American Standard in length-measuring instruments is *Scales for Use with Decimal-Inch Dimensioning* (now in its last stages of approval). The standard covers metal rules having decimal-inch graduations, which are finding increasing use in design and manufacture, particularly in the automotive industries. Slight differences in requirements of various shop and mechanical drafting users had created many special scales and caused a condition confusing and costly both to manufacturer and user. A conference held between automotive users and scale manufacturers led to an ASA project in which some 155 representatives of scale manufacturers, technical societies, trade associations, educators, and individual companies in the field of mechanical design and manufacturing took part.



This is the type of analysis obtained with equipment shown below.

NOISE DETECTIVES

by ARNOLD PETERSON

Analyzers track down noise or vibration at the source . . .

THE evaluation and reduction of acoustic noise is an important industrial problem, because prolonged exposure of personnel to intense sound may result in some permanent hearing loss. Similarly, the reduction of mechanical vibration is important, because excessive vibration sometimes leads to a dangerous mechanical failure. Furthermore, noise and vibration can seriously interfere with normal production. Noise or vibration produced by industrial machines, airplanes, trucks, transformers, or other devices can be annoying even if no definite damage results. The measurement of the characteristics of a noise or vibration is an essential step in the solution to any such problem.

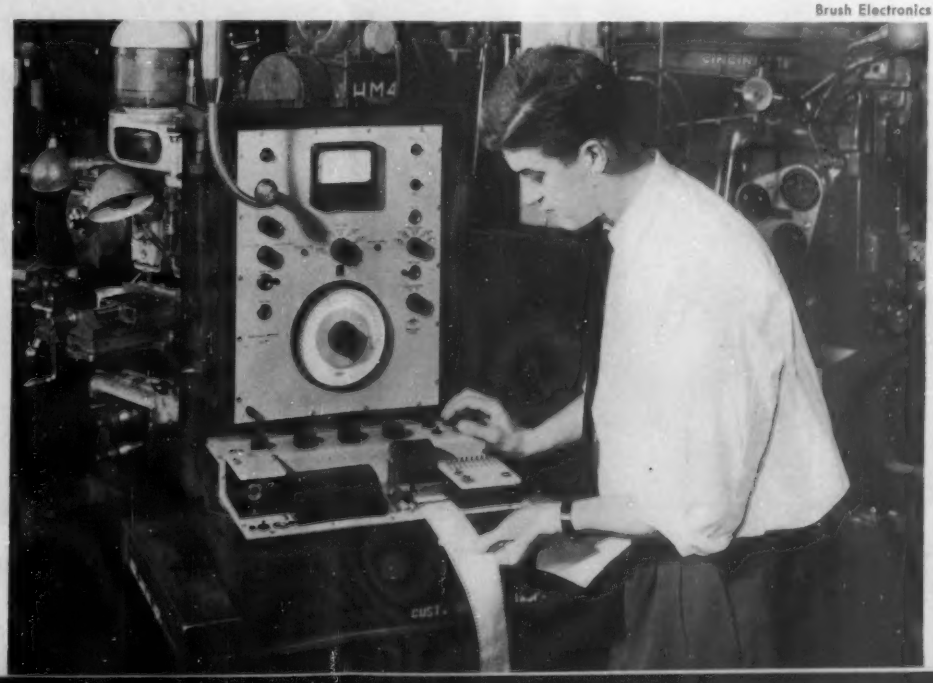
Progress in noise measurement and evaluation is due in part to the existence of standards. The American Standard Z24.3-1944 helped to bring about reasonably consistent measurements of noise level with a sound-level meter, and work is in progress on standards for vibration measurements.

Mr Peterson *is with the General Radio Company and is vice-chairman of Sectional Committee Z24 on Acoustics. He is also chairman of Writing Group 3 of Sectional Committee Z24, the subcommittee that prepared American Standard Z24.15-1955.*

But proper evaluation of most sounds and vibrations requires more than a simple measurement of the level. Usually frequency spectrum analysis is needed in addition.

The American Standard Specification for an Octave-Band Filter Set, Z24.10-1953 was prepared to pro-

Brush Electronics



Measuring noise level *in a machine shop. Used with a condenser microphone, this instrument analyzes and at the same time records the noise level. This type of analysis is applicable to noise, vibration, or to a complex signal in frequency range of 35 to 18,000 cycles.*

mote uniformity in some analyses of noise. Analysis in octave bands is most often used for evaluation of noise, but a much finer analysis is desirable for tracking down and reducing noise or vibration at its source.

Now a new American Standard Method for Specifying the Characteristics of Analyzers Used for the Analysis of Sounds and Vibrations, Z24.15-1955,[1] has been prepared to help the user and manufacturer of analyzers that are not restricted to octave bands.

Different types of analyzers are defined in the new standard, and the methods for specifying a wide range of characteristics are given. These characteristics include frequency range, bandwidth, transient response, input and output voltages and impedances, type of indication, power requirements, and extraneous influences.

Since an analyzer is ordinarily used as an accessory to other instruments, a number of characteristics have been included in the standard to make it possible for the user to determine how equipment of different manufacture can be used together. For example, an analyzer may be used to measure the output of a sound-level meter, or it may be used to analyze directly the output of a microphone. As another example, it is now becoming common to record noise on magnetic tape and to analyze the record on the tape at a later time. For any of these combinations it is necessary to know the input characteristics of the analyzer, so that one can readily determine what combinations are suitable for the problem at hand and how the instruments should be connected together. Similarly, it is important to know the output characteristics of an analyzer if the output is to be recorded on a graphic level recorder or on magnetic tape.

The utility of a standard on different types of analyzers is further evident from consideration of a few typical problems in noise measurement. If a room is to be treated with acoustical materials, an octave-band analysis of the noise usually gives sufficient detail. But if a machine with many gears is to be quieted, the analyzer must usually be sufficiently selective to separate individual components of the noise. If the analysis is detailed enough, the frequency of the strongest components can be found. By relating the dominant frequencies to shaft speeds and numbers of gear teeth, one can often identify the noisy gears.

For such a purpose the analyzer should ordinarily have a bandwidth of only a few percent rather than the 2:1 bandwidth of the octave-band analyzer. But the bandwidth should not be extremely narrow, because a slight irregularity in speed of the machine will then make it impossible to tune directly to the desired component.

If the source of noise is a power transformer, however, the analyzer bandwidth can be very narrow for the measurement of the hum components. But such an analyzer would not ordinarily be used to measure the noise from the ventilating system on the transformer. For ventilating or air-conditioning systems, where the noise is usually random in character, a bandwidth of only a few percent is often too narrow for ease in measurements, and analysis in octave bands does not provide sufficient detail for some purposes. Here an analyzer with a bandwidth of one-third or one-half octave would usually be selected. Similarly, a bandwidth of one-third octave is usually desirable for the measurement of sound transmission through walls or partitions.

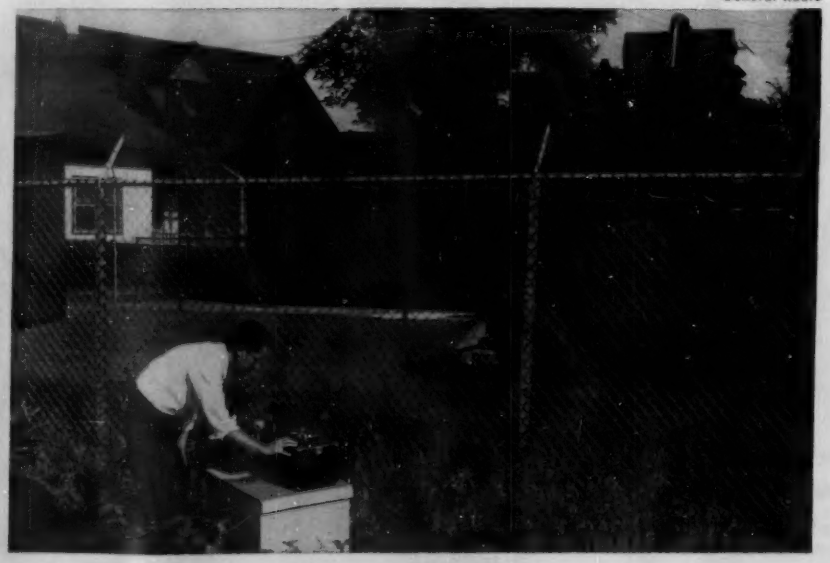
The new standard is intended to guide both the user and the manufacturer of analyzers. It describes the operating characteristics that the user should consider and sets forth the information that the manufacturer should be prepared to supply. The new standard does not specify the actual performance of any analyzer, but rather it presents the method for specifying the performance. It should prove especially useful in preparing performance specifications for analyzers to meet the needs of a particular problem.

[1] Available from the American Standards Association at 50 cents per copy.

Checking *noise components of a fan.*

Narrow-band analyzer *checking hum at a transformer substation.*

General Radio



Want *Best Results* from Your

OFFICE EQUIPMENT?

Here is what the Sectional Committee on Office Standards, X2, is doing to give you standard dimensions and performance specifications for greater efficiency

by A. H. GAGER

National Office Management Association

Ten American Standards for the office have been published. One is before the Miscellaneous Standards Board. Another will be on its way in a few weeks. And several more are in the active development stage. To those concerned with the development of American Office Standards, this is a very heartening picture. There was a time when every meeting brought forth at least one suggestion to abandon the whole idea.

In May, 1947, the National Office Management Association became sponsor of the new Office Standards Project, X2. At that time it was termed "the largest project ever undertaken under ASA procedures." Soon, those active in the project began to think of it as the most impossible project ever undertaken! It was exactly four years later (in 1951) before the first two American Office Standards gained approval. In that time, a great many (too many) proposed standards were undertaken by subcommittees of the X2 Sectional Committee. Resistance from various groups which were unfamiliar with the basic theory of standards and their advantages, and the sheer weight of following up and guiding the individual personalities involved caused many of the projects to fall by the wayside and revive only to fall by the wayside again.

One additional standard saw the light of day in 1952. By that time it was apparent that some operational change must take place since even the most ardent supporters of the program were losing faith. The revision of the program set up a three-man Administrative Committee to act on policies laid down by the sectional committee. Active development of proposed standards was assigned to Task Groups usually made up of members from one Chapter of the National Office Management Association. The personnel on these Task Groups are able to meet frequently because of geographic proximity and are used to working together.

The virtue of the revised procedures was immediately apparent. In 1954, seven additional American Office Standards were approved and published. This was a sizeable proportion of the total standards that went through ASA procedures that year.

A description of these approved standards will serve to acquaint you with the possibilities for your use of American Office Standards and the immense scope of the project.

Dimensions of Desks and Tables for General Office Use, X2.1.1—

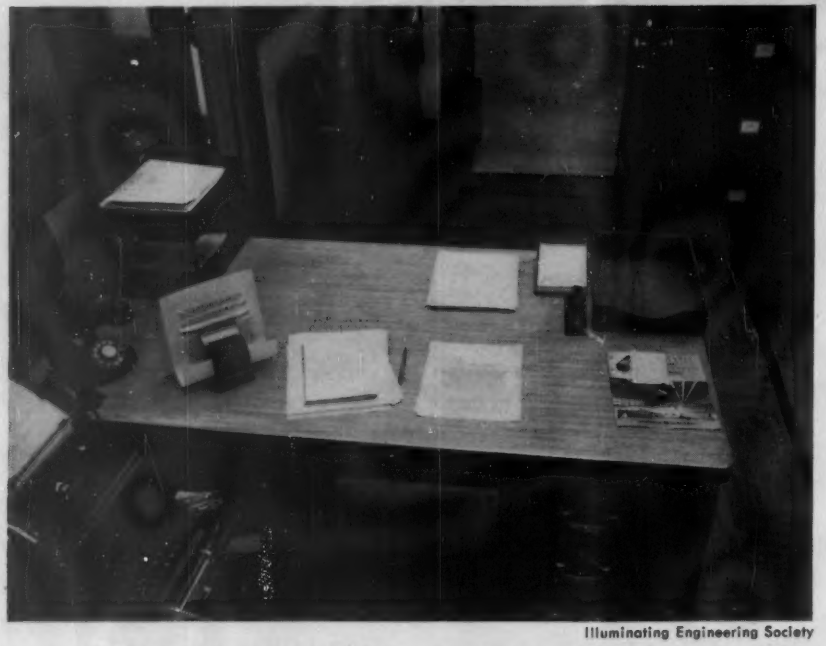
This standard provides a range of over-all dimensions for desks and tables for general office use. Considering width and depth, 24 standard sizes are provided for metal and wood desks and tables. Desks are divided into single and double pedestal. The height is fixed at 29 inches or 30¼ inches if fixed, or adjustable between these levels with a tolerance of plus or minus ¼ inch.

Following this standard makes it much easier to bring a neat appearance to an office since desks are usually placed in rows. Naturally, the reduced variety of sizes should reduce the cost to manufacturer, distributor, and consumer. The selec-

Light surfaces *for office furniture and reflectances of 35 percent are recommended for easier and better desk work.*

Right, *dark desk top has reflectance of 4 to 7 percent, tires eyes due to contrast between desk and paper.*

Below, *light desk top has 35 percent reflectance, is less tiring to use. Standard sizes for desks, also agreed on, will reduce problem of selection.*



Illuminating Engineering Society

tion problem is minimized for those concerned with purchasing office furniture.

As this standard gains acceptance, it is hoped that an even greater reduction in number of sizes will be possible.

Definition of Posture Chair, X2.1.4—

This defines the minimum features that an office chair must have in order to be termed "posture." Without this standard, it is difficult for the average purchaser of office chairs to determine whether the features claimed for them actually produce the desired results. Correct posture while performing office work for long periods can reduce the fatigue with a corresponding increase in production.

This standard makes it possible to differentiate between chairs that are adjustable to the user thus encouraging correct seated posture and those chairs that are not so adjustable.

Size Designation for Index Cards and Record-Keeping Cards, X2.4.1—

This standard is simple in its content, but important in solving an office problem. It reads: "In specifying dimensions of index cards and all record-keeping cards, the horizontal dimension shall be named first, followed by the vertical dimension." Prior to the establishment of this standard, two methods were in fairly common use; some named the horizontal dimension first, and others named the vertical dimension first.

The purchasers and users of office equipment are not as used to pin-pointing specifications as those who are engaged in engineering work. Therefore, an order for a battery of file cabinets to house 6 inch x 8 inch cards could, without the use of the standard, bring either the correct cabinets or cabinets that would house the cards with the information and writing lines running vertically instead of horizontally. Now, we know that 6 x 8 inches means that the printing, writing lines, and information will run parallel to the short or 6 inch dimension. The card will be long rather than wide.

Specifications for Non-Carbonized, Single-Ply, Adding Machine Paper Rolls, X2.4.2—

This standard specifies a number of requirements for the roll of paper used in adding machines. These adding machine paper rolls are often manufactured by converters who purchase job lots of paper and produce a product that is difficult to appraise.

Yardage alone is an important factor. The standard calls for a minimum of 225 feet of paper. Without this specification, a larger core, looser winding, or thicker

paper could produce a roll of normal diameter with considerably less paper. Rolls have been found with as little as 160 feet on them.

Four standard widths are specified to supply currently available machines. The over-all roll diameter and the diameter of the spindle hole also insure compatibility with machine specifications. The four grades of paper specified give the user a variety to suit his needs while enabling him to know the makeup of the product.

Reflectances of Furniture for General Office Use, X2.1.3—

Here is a quite valuable standard that calls for reflectances for office furniture and associated equipment services (excluding trim and decoration) which equal 35 percent of the light striking the surface. There is a tolerance of plus or minus 25 percent. Until recently, the surfaces of office furniture were usually oak or mahogany, which were relatively dark. Even the early metal furniture was painted in colors that absorbed a great deal of light. Associated office equipment was correspondingly dark. These dark surfaces absorb so much light that artificial illumination is excessively costly. The inability of surfaces to reflect an adequate amount of light causes dark shadows which make for an unpleasant office environment and are disturbing to the eye.

Perhaps the most important feature of this standard is its relationship to the office surfaces associated with reading and writing on white paper. The contrast between the paper and the surrounding surface should be low so that the eye is not constantly adjusting to light and dark and the paper does not stand out as a glare spot.

Conversely, surfaces cannot be too light, although this situation is not generally found in offices. The standard provides limits that make artificial illumination less expensive and reduce errors and eye fatigue.

Operating Voltage Range of Office Dictating Machines, X2.5.16—

This standard is designed to provide an operating voltage range that will not unduly increase the cost of the equipment but will provide satisfactory operation in most situations. The specified range is 105-125 volts ac or dc or ac-dc.

This standard is controlled by the manufacturer of the equipment, although the purchaser can influence adherence by indicating preference for the standard. The Foreword makes the reason for the standard clear: "Public and government use of dictation equipment has expanded within recent years to an extent that the principal manufacturers of such equipment believe its end use will best be served by the establishment of a uniform requirement with respect to the operating voltage range of all such equipment. The establishment of such a standard will help eliminate unsound over-design necessitated by various miscellaneous existing specifications calling for operation of equipment over ranges which are seldom, if ever, encountered in practice and are, therefore, to be considered excessive. Investigation has shown that in the majority of cases equipment will be normally operating well within the range proposed."

Maximum Electrical Leakage of Dictating Machines, X2.5.17—

Again, this is a standard that is built into the equipment by the manufacturer, but can be specified by the purchaser for his protection. This standard specifies: "the maximum leakage current shall be 0.6 milliamperes measured by an ammeter between any metallic part accessible to the user and either side of the power line." This will prevent any dangerous or even uncomfortable shock or prickly sensation while using the equipment. This standard is more difficult to meet than similar standards for other equipment, but the manufacturers themselves specified it with the assurance that it could be obtained and was desirable.

Template and Method of Attaching Dictating Machine Secretarial Hand Controls to Typewriters, X2.5.18—

The transcriber controls the start, stop, and back spacing of dictating machines with either a hand control or a foot control. The foot control lies on the floor and creates no attachment problem. The hand control must be in close proximity to the typewriter keyboard since it is operated by the typist while typing.

The problem approached by the standard is that of attaching variously designed hand controls to variously designed typewriters. Even though an attachment of one hand control might be made to one typewriter, the problem is magnified because, during normal use, it is frequently desirable to interchange controls between typewriters of different makes and it is often the practice to remove the controls each time the typewriter desk is closed.

While this standard goes a long way to solve the problem, it is currently under review by the Task Group in an attempt to further improve the attaching method.

Length of Cable for Office Dictating Machines, X2.5.19—

The Foreword of this standard is self-explanatory: "Use of dictating equipment has established the optimum lengths of cables which can be used most successfully by the dictator and the transcriber of the dictated material. Cables of less than these optimum lengths work to the disadvantage of the user, and cables of excessive length increase cost, waste material, and cause difficulty and hazard in the use of the equipment." The standard provides lengths for the power cable, hand microphone cable, listening device cable, secretarial hand control cable, secretarial foot control cable, and the telephone recorder connector cable. In each of these standard lengths, there is a tolerance of from 3 inches to 1 foot.

We feel that the Office Standards Program, X2, is firmly established. With the continued cooperation of the 16 members of the sectional committee and the use of NOMA Association Office Standards as a proving ground, useful standards should be forthcoming with reasonable frequency. As a note of encouragement to other beginners in standards development, we can report that the growing pains do not last forever and the toughest problems can be licked if you don't give up.

About the...

STANDARDS ENGINEERS SOCIETY

by MADHU S. GOKHALE

TO PERFORM the production miracle necessitated by the emergency requirements of World War II, standardization acquired the proper impetus needed to establish it as a planned engineering activity in industry and in government. Thus, this new phase of engineering, standardization, came to be recognized in partnership with the design, development, and research types of engineering.

In the wake of this development a new profession, standards engineering, emerged. However, there were no established sets of rules or recorded techniques which could guide the many to whom the task of standardization was so abruptly allocated.

Therefore, sometime during the fall of 1946, several engineers meeting in New York on standardization committee work felt the need for continuing their daytime discussions on an informal basis around the supper table. It was then that the idea of organizing a group for the purpose of exchanging personal viewpoints on standardization was born and was promptly dubbed the "Standards Club."

In 1947, graduating to a wider circle of individuals, made up mostly of personnel drawn from engineering departments assigned to do standardization work, the club was then called the "Standards Engineers Club." Thus far, the club had been operating on the basis of recommendations of a "steering committee," consisting mainly of original organizers, but had no officers. (For a group of individuals, whose normal approach to the solution of any technical problem was through a committee activity, it was only logical that they should organize a steering committee!)

For discussion of ideas on standardization techniques, the forum supplied by the "Standards Engineers Club" was apparently the exact answer to a standards engineer's daily problems. With more than 100 members on the roll, the name of the club was formally changed to Standards Engineers Society. This took place at a meeting held in the Engineering Societies' building in New York, February 25, 1948. Temporary officers were also elected and an assignment made to prepare a draft of the constitution and by-laws.

Several regular business meetings and technical sessions of the Society were held in New York during 1948 and 1949. However, subsequent geographical dislocation of the temporary officers made it necessary to move the center of activities of the Society to Philadelphia, where it is located at present. The work on the constitution and by-laws was completed during 1952 and the first regular officers were elected for 1953.

The purpose of the Society is very well stated in its constitution, as adopted on November 10, 1952. It is "to provide the means by which standards engineers and others interested in standardization may, in meetings or in such publications as the Society may issue, discuss standardization techniques and other phases of standardization as may be deemed of mutual interest." It is also the purpose of the Standards Engineers Society "to further standardization as a means of advancing national economy and to promote the knowledge of the techniques and

The Society's Officers—*Seated (left to right) Madhu S. Gokhale, President; Herbert G. Arlt, Bell Telephone Laboratories, Vice-President; Standing, Charles W. Bowler, Leeds & Northrup Company, Secretary; Victor S. Gittens, Philco Corporation, Treasurer.*

Mr Gokhale is president of the Standards Engineers Society. He is manager, Mechanical Standards, Standardizing Division, Radio Corporation of America.

application of standards issued by regularly constituted standardizing bodies."

In answer to an inquiry which is sometimes made as to the relations between the Standards Engineers Society and the American Standards Association, it may be stated that one complements the other. The purpose of the Standards Engineers Society has been stated above. The American Standards Association is the clearinghouse for standards activities on the national level. It is a federation of more than 100 trade associations, technical societies, professional groups, and consumer organizations. The main purpose of ASA is to provide the machinery for creating standards. The Standards Engineers Society, on the other hand, does not engage in any activity for development or creation of standards but is an association of those specializing in such work as part of the standardizing programs of other agencies.

Major activities of the Society are through regional meetings held in its various sections. At present the Society has sections in New York, Philadelphia, Binghamton, Washington, Hartford, and Pittsburgh. The topics discussed in the meetings of the Society's sections are generally of a detailed nature. Some of the typical subjects which have been discussed in recent meetings are:

Advantages of standardization to procurement activities
Difficulties due to non-standards
Standardization and its effects on a quality control program
What practical standardization is not
What good are committees?
New engineers needed for a new society
Reliability as a new standards concept
Responsibility of management to standardization

Apart from the formal discussions presented by scheduled speakers at these meetings a portion of the time is also devoted to a question and answer period.

As an additional means of broadening the scope of sectional activities, the Philadelphia Section is planning to put into effect an innovation called the "Standards Forum." During a predetermined portion of the regular meeting, questions submitted in writing by the members will be announced and answers solicited from the audience. If the subject is too controversial and discussion tends to be of interest only to a few, the interested individuals will be asked to give their names to the program chairman. Arrangements may then be made to continue their discussions privately. If, however, it develops that the subject being discussed is of a general and compelling interest, a formal presentation on this subject may be planned at a later date. This method of operation is intended to allot a certain portion of time at a meeting for solution of simple, everyday problems.

An important educational activity of the Society is the publication of its quarterly magazine, *Standards Engineering*. Featured in its pages are papers presented at the various Section meetings, as well as original contributions from writers prominent in standardization work.

The magazine also publishes news of activities of the Society, its Sections and individual members, and reviews of new literature and articles on standardization.

The Society also arranges annual meetings which are generally scheduled during the last week of September. In 1955, the Society's 4th annual meeting will be held at the Statler Hotel in Hartford, Connecticut, September 29, 30, and October 1. Arrangements for this meeting are being handled by the Southern New England Section of the SES, and participation by other technical societies in the Hartford area is anticipated. The preliminary program for this meeting is published on page 172 of this issue. The Proceedings of the 3rd Annual Meeting[1] held in Atlantic City in 1954 have been published recently and contain transcripts of the following papers presented at that meeting:

Integration of Government and Industry Standards
International Standardization and American Industry
Place of Standardization in Management
How to Set Up and Operate a Materials Department

Membership in the Society is open to persons who are engaged or interested in standardization work and qualify for membership in accordance with the requirements outlined in the by-laws of the Society. Memberships are available in four grades: Fellow, Member, Associate, and Student. Through these membership grades the Society affords recognition to the differing degrees of experience and maturity of its members.

Membership in the grade of Fellow is conferred by invitation of the Board of Directors only. Fellowship in the Society is generally conferred upon a member who has done notable original work which has contributed to the advancement of standardization in technical, industrial, and commercial fields. Beginning with 1954, the Society has also established the grade of Honorary Life membership. This was done to supplement the award of Honorary Fellowship conferred upon the Honorable Herbert Hoover last year, and similar awards which may be made to outstanding national personalities in the future. The citation for Mr Hoover emphasized the fact that he was a pioneer standards engineer, and a protagonist of the principles on which standards operate, i.e., efficient production and elimination of waste. As a chairman of the committee that bears his name, Mr Hoover emphasized the importance of standards in achieving desired efficiency and economy.

The membership in the Society is growing rapidly. Many companies have encouraged their standards engineers to take active part in the affairs of the Society by providing meeting places and in many other ways, thus facilitating the work of the Society.

The major emphasis for the future growth of the Society is being placed on the formation of new sections to take care of the needs of members who live outside the geographical limits of the six estab-

[1] Proceedings of the Third Annual Meeting (Atlantic City, N.J., October, 1954). Standards Engineers Society, Post Office Box 281, Camden 1, N.J. 48 pp; multilithed; self cover. $3.00 per copy. See announcement, p 172.

lished sections. During the remainder of the year the membership committee of the SES is putting extra emphasis on the establishment of sections in Chicago, Detroit, Cleveland, Cincinnati, and the Boston areas. For additional information, members and others interested in standardization are invited to communicate with the Society's national headquarters at P.O. Box 281, Camden 1, New Jersey.

Future plans and aspirations of the Society include: the establishment of a standardization medal or scholarship for a student who shows merit by submitting a paper or a thesis on an outstanding standardization topic; establishment of a chair in "Standardization" at a university through the cooperation of an educational foundation; promotion of a full curriculum, college course in standardization; and affiliation with American Standards Association as an Associate Member or if possible a Member-Body.

The Society believes that a standards engineer has a distinct role to play in the engineering and manufacturing activities of industry and government. His function is that of a coordinator at each level of operation from design to administration. The finally approved standard for any activity is achieved through participation of many experts in their respective fields. It is the standards engineer's job to guide in the development of these standards by coordinating the activities of all interested groups, at the same time assuring each one a voice in its development. Standardization in the United States has strength because of the broad participation by interested and informed individuals and because of the voluntary nature of its acceptance.

Brought about primarily because of the need for filling a void, the Standards Engineers Society stands ready to serve the nation. It is a society with a multiple purpose since it has now been established that standards are everyone's business. It may be emphasized again that the Society exists, primarily, not to develop the standards but the Standards Engineer.

SES Proceedings Issued

The papers presented at the Third Annual Meeting of the Standards Engineers Society (Atlantic City, N.J., October 1 and 2, 1954) are now available in the *Proceedings* of the meeting, just issued. The multilithed document (48 pages, self cover) is available at $3.00.

The papers include:—An Adventure in Cooperation (Integration of Government and Industry Standards) by R. V. Vittucci; The Integration of Military and Industry Standards, by S. H. Watson; The Important Problem of Integrating Industry and Government Standards by R. J. Painter; International Standardization and American Industry by Howard Coonley; Place of Standardization in Management by H. Thomas Hallowell, Jr; and How to Set Up and Operate a Materials Department by M. A. Williamson.

Preliminary Program

THE STANDARDS ENGINEERS SOCIETY FOURTH ANNUAL MEETING

Statler Hotel, Hartford, Conn. — *September 29, 30, October 1*

THURSDAY, SEPTEMBER 29

1:00 to 2:00 P.M.	Registration
2:00 to 5:00 P.M.	*Seminars*—Potentials of Standards in Your Company (Southern New England Section in charge). Others to be announced.
5:30 to 6:30 P.M.	Reception (*Sponsor*: The Fuller Brush Company)
7:00 P.M.	Dinner
8:30 P.M.	Speaker to be announced

FRIDAY, SEPTEMBER 30

9:00 A.M.	Registration
9:30 A.M. to 12:00 M.	Without Standards, No Automation! *Speaker*: Dr C. R. DeCarlo, Director of Applied Science, IBM World Headquarters, New York
12:30 P.M.	Luncheon. Presentation of Awards
2:00 to 4.00 P.M.	National Strength Related to Standardization. Panel *Moderator*: Roger E. Gay
5:30 to 6:30 P.M.	Social Hour (*Sponsor*: Veeder-Root, Inc)
7:00 P.M.	Banquet
8:30 P.M.	Speaker to be announced.

SATURDAY, OCTOBER 1

9:00 A.M.	Registration
9:30 A.M. to 12:00 M.	What's the Future of Standards? Panel. *Moderator*: Vice Admiral G. F. Hussey, Jr, USN (Ret), Managing Director, American Standards Association

An Improved Tool To Find The Correct Photographic Exposure

Arnold J. Kleinfeld

Mr Morse is with Ansco. He worked closely with the chairman of Subcommittee PH2-10, which developed the standard computer, and with the chairman of Sectional Committee PH2, Photographic Sensitometry, in preparing this article. Chairman of Subcommittee PH2-10 is M. G. Anderson, Ansco. H. R. Sprentall, Eastman Kodak, is chairman of Sectional Committee PH2.

by H. G. MORSE

THE latest in a co-ordinated group of standards designed to take the guesswork out of picture taking has just been published by the American Standards Association. This is a new revision of the American Standard Photographic Exposure Computer, now identified as PH2.7-1955.

One of the most important problems in photography is that of exposure. Before World War II the question "What settings should I use today" had an almost infinite variety of answers depending on which of the more than 17 current film speed ratings and which of the tables recommended for each rating the photographer chose to believe. A judicious switching from speed system to speed system and table to table could usually net him a two to fourfold increase in apparent film speed. Bright sun, clear sun, or full sun apparently meant somewhat different things to different authorities. When the weather and the scenery or both began to get difficult, the various tables could well have been written by the legendary professor who graded examination papers by throwing the batch down a flight of stairs; the higher the step the higher the grade, or in this case exposure.

The advent in the early thirties of the photoelectric exposure meter, which measured the light falling on or reflected from a scene, marked a start in bringing some order out of this confusion. But while light units were standardized, the meters differed in their method of coverage and did not measure exactly the same the quantity wanted by the photographer who needed an exposure for the deepest shadows to be seen in the final picture. Each manufacturer had to make his own estimate as to the margin of safety to be allowed for this and for the normal variation in lenses, shutters, and films.

The first, and one of the most important, in a series of American

Standards designed to provide a single answer for exposing a given film in a given situation was written for the Armed Forces in 1942 as the American Emergency Standard Photographic Exposure Computer Z38.2.2. With exposure meters a rarity during the war years this was a must for the multitude of recently trained Army and Navy photographers. The small leatherette-covered booklet with tables and a slide rule type dial calculator could be carried in even a serviceman's pocket. It gave him definite exposure answers applying to all conditions of weather, scene type, time of day, or time of year and had additional information for unusual situations, for flood and flash pictures. It was designed for military use and examples cited were those which would be familiar to the service man. After the war the computer was joined by an American Standard Method for Determining the Exposure Indexes that apply to it and later by standards which extended the exposure indexes to other sources of illumination besides daylight. Other recent standards prescribe methods for determining flash guide numbers and specify design factors for exposure meters. This group operates together to move exposure and film speed questions from the realm of estimate and conjecture and instead provide co-ordinated mathematically accurate answers.

In 1949 the War Standard was adapted to civilian use, the illustrations were changed to peacetime subjects, flash was moved to a standard of its own, and a scene index table was added to apply to black-and-white and color reversible materials. The current revision takes advantage of the experiences of users of the 1949 standard which indicated that a simplification of some sections was possible.

The present standard, like its predecessor, is a pocket-size leatherette booklet which can be carried in the field. It is basically the same in operation as the earlier versions but is set up to give somewhat less exposure for negative films for many photographic situations. The new negative film scene table has one grouping marked "normal" which leads to the same exposure recommended for reversal films in clear sunlight, when both films have the same exposure index.

The computer should not be confused with the simple exposure tables put out by the various film manufacturers. While the tables are based on the standard, they are prepared for average conditions and are usually rounded off to the nearest full stop. The standard considers the time of day, time of year, latitude, sun condition, shade condition, and type of scene to give answers in a third of a stop or a $\sqrt{2}$ intervals.

To operate the computer, one first looks up the time of day and month of the year in the proper light index table for his latitude. In the summer months this index is zero for most of the day but the tables give precise corrections for winter and for pictures taken early and late when the sun is near the horizon and light conditions are particularly difficult to judge. This section has not been changed in the revision.

The photographer then turns to the proper scene index table where he first selects the sun conditions, choosing from clear sun, hazy sun, cloudy bright, or cloudy dull, and then the proper scene type. The scene index for the combination is read from the table.

There are two tables, one for negative and one for reversal films. The negative table has classifications, distant, nearby (normal), and close-up with the last two subdivided into unshaded, light shade, and heavy shade. The table for reversal film is subdivided into front, side, and back light with extra columns for light and heavy shade. The booklet contains descriptions and pictures of the various classes of scenes so that the proper choice is made easy.

The major changes in this revision are in the scene index table for black-and-white and color negative films. The earlier versions applied to black-and-white only and had four classes of scenes, each separated by a full stop. The new applies to color as well and has only three classes. The distant and semi-distant classifications have been combined. The nearby is now designated normal and leads to the same bright sun no shade exposure as is given in the scene index table for reversal films. The close-up now requires only 2/3 stop more exposure than the nearby. The additional exposure for side lighting has been reduced from 1 to 2/3 stop and for back lighting from 2 to 1 stops. In terms of camera settings for a film with an exposure index of 50, clear sun around midday in the summer, these changes mean that for a close-up where the old standards required 1/50 second at *f*7 for front and *f*3.5 for back lighting, the revised version allows *f*11 for the front and *f*8 for back at the same shutter speed. The revision recognizes the uncertainty in evaluating the cloudy and shade conditions by noting that the heavy shade classification for all sky conditions and the light shade for cloudy sky could be given up to 1 stop additional exposure for greater safety.

The primary reason for this change is that the former versions placed great emphasis on the important small shadow details which are significant in close-up pictures but merge with lighter areas and are diluted by atmosphere haze in more distant scenes. The close-up illustration in the original 1942 Emergency Standard was an airplane cockpit with detail desired even in the darkest recesses of the instrument panel. The present illustration for this class, two children on a doorstep, has more open lighting in the important small shadows. Experience with the standard in use showed that lower exposure levels for close-up and nearby scenes were still adequate to give a safety factor of 2.5 times for these situations.

Only minor changes were made in the scene index table for black-and-white and color reversal films. The same general change in correction for side and back lighting as given for negative films was made here. There is a 2/3 stop increase for side lighting and for back lighting effect, and a full stop for back lighting when shadow detail is wanted.

The photographer adds the light index and scene index he has ob-

tained from the tables. He then selects the exposure index for the film he is using on the inner movable dial of the circular slide rule calculator which is part of the standard computer and matches it against the sum of the index on the top stationary scale. The available combinations of *f* numbers and shutter speeds which he can use are read directly on the lower pair of scales. For example:

> Washington, D.C., 8 A.M., October, hazy sky, semi-distant side-lit subject, negative film, Exposure Index 50. Light Index is 3. Scene Index is 3 plus 2 (side lighting). Light Index plus Scene Index is 8. Set 50 on dial at 8. Correct exposures are: 1/50 at *f*8, 1/100 at *f*5.6, etc.

The logarithmic index numbers were selected so that each unit represents 1/3 stop or an increment of 2. Other factors were arranged on the calculator dial so that the same spacing represents a 1/3 stop exposure change in all cases. This allows a simple one-setting solution of a problem which would normally be solved by the following equation:

$$\text{Log } T - 2 \text{ Log } f + 2.6 = \frac{\text{Light Index} + \text{Scene Index}}{10} - \log \text{film Exposure Index}$$

(Where T is exposure time in seconds, f is f number of lens opening.)

An appendix published with the computer includes a table of exposure indexes for most commonly used films. Manufacturers' ratings are included for both black-and-white and color in negative and reversal classes.

This revision was prepared by subcommittee PH2-10 of ASA Sectional Committee on Photographic Sensitometry PH2. Members are: *Chairman,* M. G. Anderson, Ansco; C. N. Nelson, Eastman Kodak; A. G. Stimson, General Electric.

Copies of the American Standard Photographic Exposure Computer PH2.7-1955 may be obtained directly from the American Standards Association for $1.50 postpaid.

Movable dial *(white) of this slide rule calculator turns so sum of light index and scene index can be matched with film exposure index. Result is correct lens opening.*

Scene index tables *below are for use with either black-and-white or color negative films or with black-and-white or color reversal films. Major changes in this edition are contained in these tables.*

SCENE INDEX TABLE FOR BLACK-AND-WHITE & COLOR NEGATIVE FILMS

Sky Condition	Distant and Semi-distant Scene	Nearby Scene (Normal)			Close-Up Scene		
		Unshaded	Light Shade	Heavy Shade	Unshaded	Light Shade	Heavy Shade
Clear Sun	0*	3*	6	9	5*	8	11
Hazy Sun	3*	6*	9	12	8*	11	14
Cloudy, Bright	6	9	12	15	11	14	17
Cloudy, Dull	9	12	15	18	14	17	20

*For side lighting, add 2; back lighting, add 3.
The hatched areas represent sky and shade conditions which vary considerably; hence, the values given in these blocks are subject to some uncertainty. For greatest safety additional exposure (up to a stop) may be given.

SCENE INDEX TABLE FOR BLACK-AND-WHITE & COLOR REVERSAL FILMS
(Not intended for films which are to be printed instead of viewed directly.)

			Back Light for			
	Front Light	Side Light	Lighting Effect	Shadow Detail	Light Shade	Heavy Shade
Clear Sun	3	5	5	6	12	15
Hazy Sun	6	7	7	8	—	—
Cloudy, Bright	9	—	—	—	—	—
Cloudy, Dull	12	—	—	—	—	—

These indexes are for average colored subjects. For light colored subjects, subtract 2 from the index. For dark colored subjects, add 2 to the index. For close-ups of subject areas less than 2 feet wide, add 2.

Are *Plastics* Good for Eye Protection?

Committee Z2 reports on research showing how plastics react to light and color.

Radiant energy and flying particles which may blind or impair the eyesight have led engineers and scientists to study available materials for conservation of eyesight.

The increased use of plastics as eye protectors has raised a number of questions regarding their adequacy. These questions have been answered in a report called "The Spectral-Transmissive Properties of Plastics for Use in Eye Protection,"[1] prepared by a committee of experts working under the procedures of the American Standards Association.

The Z2 report, as it is called, covers currently available types of plastics suitable for use in protecting eyes. This includes protectors such as lenses, head and face shields, and goggles.

Plastics were studied for their ability to protect the eyes from the absorption of ultraviolet, luminous, and infrared rays from industrial equipment and from the sun.

Especially in industry, the elimination of harmful ultraviolet rays must be given first attention, the paper warns, as these rays strike without any of the danger signs first. Only after the damage has been done do the effects appear in the form of a conjunctival irritation, "sand in the eyes." Therefore, the report covers in detail the requirements for plastics to be used in goggles and filter lenses.

Very few plastic materials are suitable for use in eye-protective lenses or shields, says the report, as most materials are either opaque or translucent to the visible light rays. Only those that are basically crystal clear and may be given appropriate color through the use of suitable dyes and dyeing processes can be considered useful for lenses, and then only if they have suitable chemical and physical properties, such as a large degree of chemical inertness and physical stability. They must not, for example, irritate the skin or have offensive odors or be subject to deterioration by perspiration or other common chemicals with which they are likely to come into contact. Neither can they be soft or brittle or too easily scratched or broken.

Data on the spectral transmittances of plastics are presented in two sets of graphs, consisting of 106 illustrations.

The first set of graphs gives the spectral transmittances for representative samples in the ultraviolet, visible, and near infrared regions of the spectrum, while the second set deals only with the infrared regions.

In this investigation the transmission data were obtained radiometrically or photometrically through the use of three instruments. The ultraviolet, visible, and near infrared spectral transmittances were obtained with a Beckman quartz spectrophotometer. Between about 800 and 1900 millimicrons, data were obtained by means of a double quartz prism spectroradiometer equipped with a lead sulfide photoconducting cell that was coupled into a tuned alternating-current amplifier. In this case the light source was a modulated beam from a tungsten ribbon-filament lamp. For the spectral region extending from about 1500 millimicrons to the long-wave limit of transmittance of plastic materials, a double beam, Perkin-Elmer, rock-salt prism, automatically recording spectroradiometer was employed.

In general, for the various plastic materials covered in this report, the particular dye employed and the thickness of the material determine for the greater part the transmissive properties in the ultraviolet and visible spectral regions. In the infrared, however, the dye has little effect on the transmissive properties. Therefore, the resulting transmission curve is primarily a function of the thickness or molecular structure of the plastic material itself.

The transmission data are given for the different materials in various thicknesses and colors representative of those commercially available and presently employed in industry. Therefore, the illustrations should be considered as representative of plastic types.

The following organizations supplied materials used in this investigation: American Cyanamid Company, New York; American Optical Company, New York; Arcos Corporation, Philadelphia; Armorlite Lens Company, Pasadena, Calif; Bausch & Lomb Optical Co, Rochester, New York; Celanese Corporation of America, New York; Chicago Eye Shield Company, Chicago; Dockson Corporation, Detroit; The Dow Chemical Company, Midland, Mich; DuBois Plastic Products, Inc, Buffalo, N.Y.; Eastman Kodak Company, Rochester, N.Y.; The Homalite Corporation, Wilmington, Del; Lincoln Electric Company, Cleveland, O; Mine Safety Appliance Co, Pittsburgh; Monsanto Chemical Company, Springfield, Mass; Naugatuck Chemical, Naugatuck, Conn; Pittsburgh Plate Glass Company, Milwaukee; Plax Corporation, Hartford, Conn; Rohm & Haas Company, Philadelphia; Standard Safety Equipment Company, Chicago; United States Safety Service Co, Kansas City, Mo; and Willson Products, Inc, Reading, Pa.

This report was prepared by the Subcommittee on Transmissive Properties of Plastics and approved by the Committee on Eye Protection of the Sectional Committee on Heads, Eyes, and Respiratory Organs, Z2, which operates under the procedures of the American Standards Association. This sectional committee is sponsored by the National Bureau of Standards, U.S. Department of Commerce; the U.S. Bureau of Mines, and the U.S. Navy Department.

[1] 48 pp, 8½ x 11. American Standards Association, 70 E. 45 Street, New York 17, N. Y. $1.50.

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Bureau of Supplies, Board of Education of the City of New York, Benefits through the Use of Standards

By S. P. Kaidanovsky

Mr Kaidanovsky is Technical Director of the Management and Technical Services, New York. He was formerly chairman, Federal Interdepartmental Standards Council; technical consultant, Federal Specifications Board, and editor Standards World.

Legal Authority Under Which the Bureau of Supplies Operates

THE authority for purchase of school supplies rests with the Board of Education by virtue of Education Law, Section 2556, paragraph 10, of the laws of 1952. This paragraph states that:

"No contract for the purchase of supplies, furniture, equipment or for construction or for alteration or remodeling of any building shall be entered into by the Board of Education involving an expenditure or liability of more than a Thousand Dollars unless said Board shall have duly advertised for estimates for the same, and the contract in each case shall be awarded to the lowest responsible bidder furnishing a security as required by such Board, provided however that if two or more bids on contracts for purchase of supplies, furniture, or equipment are tied and are the lowest bids submitted by responsible bidders furnishing the security as required by said Board, the said Board may award the contract to any of the said tied bidders."

The laws of 1952 were amended this year to include a new paragraph 10a which reads as follows:

"In a city having a population of 1,000,000 or more if the several parts of the work or labor to be done and/or the supplies, materials, and equipment to be furnished shall together involve an expenditure of not more than $2,500, the same may be procured on order awarded to the lowest responsible bidder upon bids submitted without public advertisement under such regulations as shall be made by the Board of Education. Purchases of $25 or less may be made without competition."

The New York City Charter[1] exempts the Board of Education from the authority of the Department of Purchase of the City of New York. This exemption is contained in paragraph 349 which reads as follows:

"The provisions of this Charter shall not apply to purchases by or for the Board of Higher Education, the Board of Trustees thereunder or any of the Institutions under its or their control or to the Board of Education or the Department of Education."

As a matter of policy in the execution and performance of contracts, the Board of Education follows the rules and regulations established by the Board of Estimate. These are contained in the "Resolution Adopted on June 30, 1949 (Calendar No. 318-A) approving the regulations of the Board of Estimate relating to the execution and performance of contracts by the City of New York."

[1] Adopted at the General Election held November 3, 1936, effective January 1, 1938, Chapter 13, Contracts and Purchases.

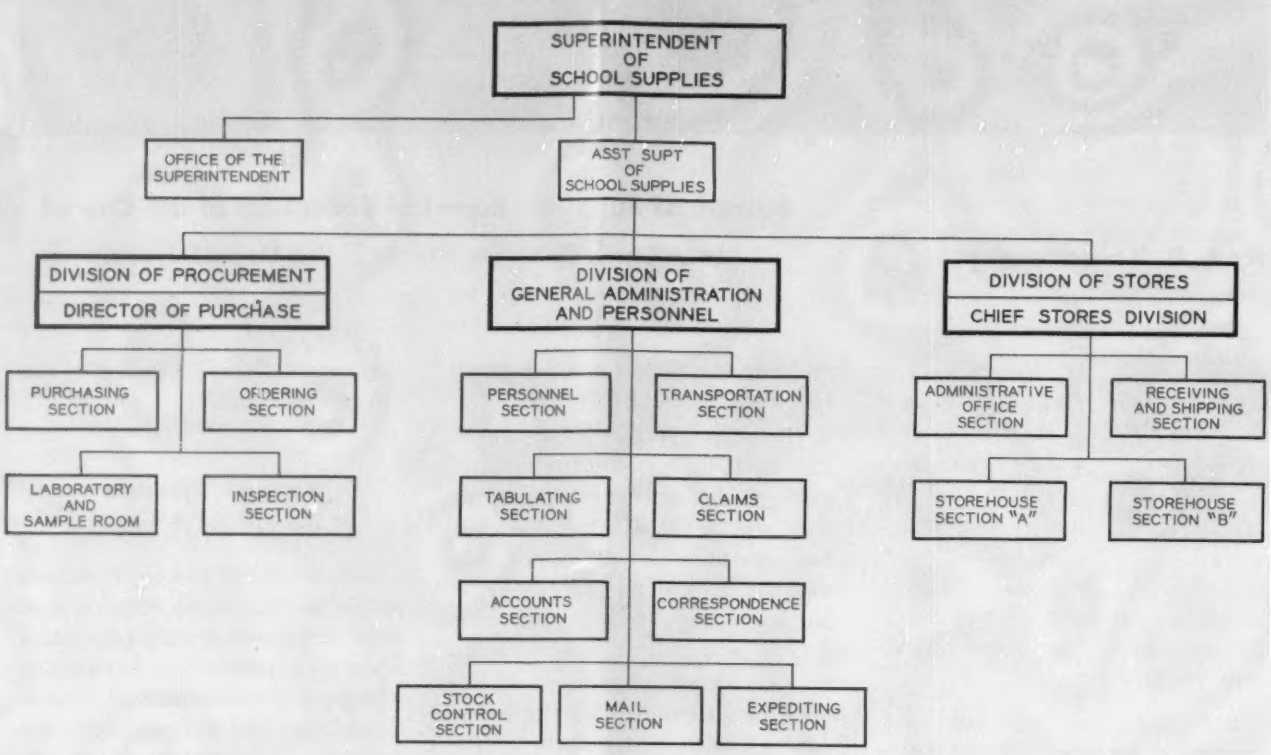
Scope of Operation of the Bureau of Supplies

New York City with 8 million people has the largest school system in the world. Its student population is almost a million. The purchasing, storage, and distribution of all materials, supplies, and equipment for this system is performed by the Bureau of Supplies of the Board of Education of the City of New York. This Bureau is under the direction of Mr Louis J. Cook, Superintendent of School Supplies. It handles the purchase, storage, and distribution of materials and equipment not only for the city's many instructional divisions (elementary schools, high schools, and vocational schools) but also for the service divisions, maintenance, and operating divisions. The various operating divisions of the Bureau of Supplies are shown on the organization chart.

The Bureau not only keeps pace with the current needs of the schools, but also anticipates future requirements.

The purchasing program of the Bureau involves expenditures of well over 20 million dollars a year, covering a wide range of materials and commodities. The staff of the Bureau, more than 300 persons, consists of buyers, inspectors, clerks, and other office and store workers. They are housed in a city warehouse occupying over 225,000 square feet. The Bureau delivers more than 12,000 tons of supplies from its central depository.

BUREAU OF SUPPLIES — BOARD OF EDUCATION



The Bureau not only purchases supplies, materials, and equipment, but it also contracts for many of the services required in the schools or administrative offices; such as, rental of office machine equipment, burglar alarm service, cartage of supplies and equipment, and school bus service.

The Bureau also utilizes contracts entered into with vendors by the Department of Purchase of the City of New York, covering all departments. These cover the rental of tabulating machines and the purchase of tabulating machine supplies, gasoline, and lubricating oils.

The Bureau purchases food for lunches served in the elementary and junior high schools.

Bureau of Supplies Specifications

The specifications used by the Bureau of Supplies are for many commodities purchased by the various departments and activities of the Board of Education. The following classes may be mentioned: Office furniture and fixtures, laboratory chemicals and supplies, food supplies and kitchen equipment, books and instructional materials, and operating supplies and equipment for maintenance of school buildings, printing, etc.

Supplies and equipment in large quantities are purchased on the basis of detailed specifications. Specifications of various agencies of the Federal Government and nationally recognized specifications, also specifications of the Department of Purchase of the City of New York, are used in as many instances as possible. These specifications are sometimes used by reference, or are modified to meet the particular requirements of the Board of Education. For special items unique to the needs of the Board of Education detailed specifications are prepared after research, investigation, and consultation with using agencies and manufacturers of the commodities.

Certain specialties do not lend themselves to detailed specifications. These are purchased on the basis of requirements supplied by the using agency to meet its particular needs.

Bureau of Supplies specifications are prepared by a staff of trained buyers, specialists in particular classes of commodities. No specification unit is available for this.

Electrical Requirements. — Electrical items, such as electrically operated office machines, refrigerators, freezers, food mixers, slicing machines, etc, must be in accordance with the American Standard National Electrical Code, or bear Underwriters' Laboratories' Approval.

The Department of Water Supply, Gas, and Electricity approves the electrical requirements of the specification. The department stipulates that the items prefixed in the invitation to bid are subject to final acceptance after delivery by the chief engineer of Light and Power of that Department, who issues a certificate of approval. Such items must also comply with the Electrical Code of the Administrative Code of the City.

Motors, except when otherwise specified, must meet the requirements of the National Electrical Manufacturers Association.

Test Requirements for Motors or Equipment with Motors. — Before motors or any equipment with motors are shipped, test data must be submitted to the Superintendent of

School Supplies. These must be presented on standard forms similar to and containing all the data shown on form Mg 9-549 of the National Electrical Manufacturers Association.

Outline of Form for Preparation of Bureau of Supplies Specifications.—The outline of form is patterned after the form of the Federal Government. Before commodities are placed on the so-called "Approved Lists," they are submitted to various committees of the Board of Education for their approval.

Procedure for Approving Standard Supplies

Some of the items, such as furniture equipment, instructional materials, and maintenance materials are placed on the approval lists in the following manner:

Furniture and Equipment.—The Housing Division of the Board of Education prepares a program of requirements showing the various activities to be incorporated in a new school schedule for construction. Standard furniture and equipment for each type of room in each type of school is approved by the Board of Education.

Instructional Material.—The Committee on Textbooks and Supplies of the Board of Superintendents, through its members or advisers, considers every item of supplies and every textbook and library book submitted to it for placement on the approved list. Lists of Supplies, items and books, found desirable are presented by the Committee to the Board of Education for approval. When approved, the lists are then forwarded to the Bureau of Supplies for preparation of purchase orders.

Maintenance Materials. — The Custodial Supplies Committee, consisting of a group of school custodians, examines custodial supplies items offered for placement on the Approved List. This committee makes its recommendations to the Superintendent of Plant Operation and Maintenance. He in turn forwards a list of the supplies he approves for placement on the Approved List to the Superintendent of School Supplies.

Approved Lists of Standard Supplies

The Bureau of Supplies prepares approved lists of standard materials, supplies, and equipment for each school year. Such lists, issued by the Board of Education, are furnished by the Bureau of Supplies to the schools for their guidance in the selection of their supplies.

These lists are published in the form of a catalog, 6 x 9 in., and are designated "G-1 List, General Supplies, Vocational Supplies"; "S-1 List, Science Supplies"; and others. Each catalog lists the item number, description of the item, unit, and price per unit. An alphabetical index gives all items in each catalog. Requisitions for each item are prepared on a standard requisition form.

In addition, a Custodial Supply List is furnished each year to the school custodians. Such list serves also as a requisition. It gives the item number, description of the item, unit, and price per unit. The custodians are required only to indicate the total units needed. The rest of the calculation is performed by the Bureau of Supplies. Under this system, the custodians can use only standard items; mistakes in transcription are eliminated; and considerable amount of paper work is saved.

Louis J. Cook

Superintendent of School Supplies, Board of Education, New York City

Unlisted Supplies

In addition to standard items (about 4,000) stored by the Bureau of Supplies, there is from time to time a need for non-listed items. Principally such items are needed for the vocational high schools which have many special shops requiring special materials. A specification is prepared for each such item by the Bureau of Supplies, and each requisition is treated individually.

Standardization of Printed Books and Forms

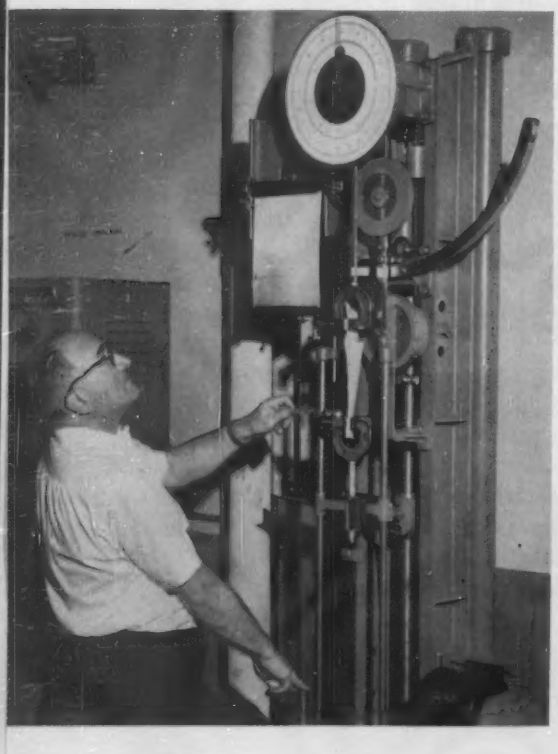
The Bureau of Supplies has standardized a great number of printed books and forms, such as: Attendance and class records books; bookkeeping, business training, health and education forms; letters and envelopes; monthly reports; examination papers; purchase orders and requisitions; telegram blanks; and others. Such standardization facilitates the operation of the school system and results in appreciable savings.

Standardization of Furniture and Equipment

A standard list of furniture and equipment is established for each different type of room or activity within the school building. As a general rule, the floor area within the building devoted to such activity is maintained within certain standards. However, on occasion, a variation of such standards would result in some changes in the furniture assigned. An attempt is also being made to achieve standardization in so far as possible in the structure of various items of furniture and equipment. For example, standard specifications have been developed for storage cabinets with shelves. Such cabinets can best be fitted with shelves with tool-holding racks or have interior fittings, and can also be fitted with hinge doors, sliding doors, or roller front doors, as required. For classroom chairs and tables, a tubular steel frame with wood chair backs and seats and wood desk tops is the standard.

The requirements for furniture and equipment of a school building under construction are determined up to a year prior to construction completion. The requirements for each room or activity in the school are correlated for the entire building. A requirement schedule is then established which lists the standard item number assigned for each item, the quantity, description, the estimated unit price, and the total cost of each item, as well as the total cost by class of items and the total for the project. This schedule requires the approval of the Board of Education and Board of Estimate, the authorization of the latter being required before capital budget funds may be encumbered. The furniture purchasing section of the Procurement Division attempts to keep abreast of new developments in furniture and equipment, and as items are produced that may better serve the needs of the school system, either a description or a sample of the item is referred to the Housing Division of the Board of Education in order that the recommendation of the pedagogic and supervisory offices may be obtained. Acceptable items find their way into the standard list for the appropriate room or activity.

Testing strength *of textiles—Laboratory tests check whether materials meet specifications*



Classification System of Commodities

The Bureau of Supplies is using a standard classification system in the assignment of item numbers for various standard items. This system is patterned after systems used by the Federal Government and industry, and has been adapted to the needs of the items used in the school system. The item numbers consist of six digits.

Commodity Classes—The following commodity classes are used by the Bureau of Supplies. These classes were developed on a material rather than a functional basis.

50-XXXX	Brooms, Brushes
51-XXXX	Ceramics
52-XXXX	Chemicals
53-XXXX	Chemicals
54-XXXX	Cleaning and Polishing Materials and Petroleum Products
55-XXXX	Cutlery and Cutting Devices
56-XXXX	Display and Demonstration Equipment
57-XXXX	Drugs and Medical Equipment
58-XXXX 59-XXXX	Electrical, Electronic and Auditory Instruction Supplies
61-XXXX	Games, Toys and Athletic Equipment
62-XXXX	Glass and Glassware
63-XXXX	Hardware
64-XXXX	Inks, Dyes and Stains
65-XXXX	Instruments and Measduring Devices
66-XXXX	Insulating and Adhesive Materials
67-XXXX	Lumber and Wood Products
68-XXXX	Machines and Accessories
69-XXXX	Metals
70-XXXX	Metal Products
71-XXXX	Minerals and Plastics
72-XXXX	Paints and Paint Products
73-XXXX	Paints and Colors (for Art Work)
74-XXXX	Painting-Drawing Accessories
75-XXXX	Paper (Colored, Drawing, Manila, Tissue, etc)
76-XXXX	Paper (Writing, Printing, Business)
77-XXXX	Paper, Printed
78-XXXX	Paper Products
80-XXXX	Rubber and Rubber Products
81-XXXX	Stationery and Drawing-Writing Materials
82-XXXX	Texiles Products
83-XXXX	Textile Products
84-XXXX	Threads
85-XXXX	Twine, Cordage, Rope, Leather, Raffia and Reed
86-XXXX	Dry Goods and Sewing Accessories
87-XXXX 88-XXXX	Tools
89-XXXX	Miscellaneous Equipment
90-XXXX	Services
93-XXXX	Shop and Cafeteria Equipment Items
96-XXXX 97-XXXX	Furniture

Activity Classifications for Instructional Materials

XX-XXX0	Art and Mechanical Drawing
XX-XXX1	Home Economics, Food and Household Care
XX-XXX2	Kindergarten
XX-XXX3	Sewing
XX-XXX4	Workshop
XX-XXX5	Items for General Use
XX-XXX6	Vocational
XX-XXX7	Custodial
XX-XXX8	Science Classes
XX-XXX9	Special Activities

Item Code Number

The first two of the six digits, separated from the last four by a hyphen, desigate the material classification. The next three digits are subdivisions of the commodity. The last digit designates the activity for which the item has been adopted. For example, the code number for brush, glue, round, nickeled ferrule, rounded end, bristle 17/32 x 1½ in. long, total length 8¼ in. is 50-4184. "50" in the material classification is brooms, brushes; the item number ends with the figure "4," which shows that it is a workshop item. In the Workshop Supplies and Equipment Section of "G-1" List, 1955-1956, General Supplies and Vocational Supplies, the above item is listed under 50-4184.

Reference to Manufacturers' Catalogs.—Manufacturers' catalogs are also coded with the commodity code number of the Bureau of Supplies. An index for each commodity number lists the various manufac-

turers who produce items within the respective commodity.

Activity Code Number. — In the instance of instructional materials, the terminal digit is a code number identifying the specific activity which would use the item. An item ending with terminal digit "6" would be used in vocational classes, and an item ending with terminal digit "5" would be for general use.

The activity code number is not used in case of furniture equipment items; that is, those items in the "93" to "97" inclusive classes. In the case of furniture, the third digit designates a subdivision in the furniture field. For example, 97.0 for office furniture and 97.2 for classroom pupils' furniture.

Inspection and Testing

Inspection. — Supplies and equipment purchased by the Bureau of Supplies are delivered to the storehouse or to the schools. Orders involving large sums of money are referred to the Inspection Division of the Bureau of Supplies which sends an inspector to the point of delivery to examine the supplies for compliance or non-compliance with specifications. A visual inspection often is inadequate to determine if the commodities delivered comply with specifications.

An inspector is stationed at each coal yard and oil storage terminal from which deliveries are made to the schools. This inspector takes a sample of the coal or oil carried out on each truck. The sample is sent to the Central Testing Laboratory of the Department of Purchase of the City of New York for analysis to assure that the heating and other properties of the fuel conform to the standard. Stipulated penalties are assessed for failure to meet specifications. The Bureau's policy is to discourage penalties as "they cannot be burned in a heating furnace."

Testing Laboratory of the Bureau of Supplies. — Supplies or equipment requiring chemical or physical testing are submitted by the inspectors to the testing laboratory of the Bureau of Supplies. The technical staff of the Bureau of Supplies

Purchasing Division *spends more than $20,000,000 per year for supplies and equipment for New York City's schools. Buyers are specialists in their fields.*

laboratory utilizes a variety of test methods and equipment to determine whether or not delivered commodities or samples submitted by the vendors meet the specifications. All supplies delivered to the stores are tested if necessary before acceptance. Substandard supplies are rejected.

The test methods are either indicated in detail in the specification, or the methods are based on the procedures of such recognized agencies as the American Society for Testing Materials, American Standards Association, Association of Official Agricultural Chemists, American Association of Textile Chemists and Colorists, American Chemical Society, Technical Association of the Pulp and Paper Industry, and Federal Government agencies.

The testing laboratory of the Bureau of Supplies is not equipped with facilities for testing fuel (coal and oil) and foods. These commodities are tested by the Central Testing Laboratory of the Department of Purchase of the City of New York.

Storage of Supplies and Equipment

The Bureau of Supplies is using as reference guide, adapted to its particular needs, the "Warehouse Operations Handbook" of the General Services Administration, Federal Supply Service.[2] This Handbook incorporates in one volume essential elements of the various phases of modern warehouse operations. It is a valuable collection of fundamental principles and accepted operational practices followed by the General Services Administration and its regional offices.

The Bureau of Supplies maintains a depository in which it stores the thousands of items regularly used by the schools. The depository occupies about 175,000 square feet of space in a modern fireproof building. Its practices conform to those of accepted modern warehousing methods. In addition to supplying instructional materials and administrative office needs, the depository stores and assembles for delivery to school custodians all of the cleaning materials and equipment they require for building maintenance. Approximately 700,000 items of supplies are delivered to principals and custodians annually.

The Stores Division and the Stock Control Division have developed a series of standard forms, resulting in economical and efficient operation of the school system.

Let's Follow a Good Lead

A review of the activities of the Bureau of Supplies reveals that in the operation of several of its divisions, standard methods are used to a great extent. In addition, the use of approved lists of standard supplies and equipment by all schools of the system, standardization of printed books and forms, standardization of furniture and equipment, the use of modern warehousing methods and standard forms for stock control, result in appreciable savings.

[2] A copy of the *Warehouse Operations Handbook*, 8 x 10½, 150 pages, is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. Price 75 cents.

Announcing New Books . . . .

Industrial Purchasing. By J. H. Westing; I. V. Fine, and the Milwaukee Association of Purchasing Agents. March 1955. John Wiley & Sons, Inc, 440 Fourth Avenue, New York 16, N.Y. $7.50

Every chapter in this book is based on the experience of a specialist, a member of the Milwaukee Association of Purchasing Agents. When the Association and the School of Commerce of the University of Wisconsin found that literature on purchasing is scarce, the Association agreed to contribute the talent and experience of its members to make the basic principles and practices of purchasing more generally available. The chapters the Association members wrote were reviewed by a text committee and edited by J. H. Westing and I. V. Fine of the University of Wisconsin faculty.

Among subjects discussed are the organization, procedure, forms and records of purchasing; selection of sources of supply; determining price; traffic; scrap disposal; forward buying and speculation; legal aspects; personnel; evaluation of performance; and public relations.

A section on quality and quality control of purchased materials takes up standards and standardization in their relation to purchasing. Joseph W. Nicholson, Central Board of Purchases, City of Milwaukee, well known for his application of standards,[1] was one of the Association members who contributed to the book.

Storage Batteries. By George Wood Vinal. Fourth Edition. 1955. 446 pp. John Wiley & Sons, Inc. $10.00

The technologic advances in battery design and construction that have taken place in the 14 years since publication of the third edition are reflected in this new edition. All chapters have been revised and some have been entirely rewritten. Physical and chemical properties of materials used in making batteries are discussed, a general description is given of manufacturing processes, and practical presentation of the principles of operating storage batteries is included. Important industrial applications are described.

In preparing this edition, Mr Vinal enlisted the cooperation of leading experts throughout the industry in order to provide an accurate, modern survey of storage batteries.

Mr Vinal is a member-at-large on Sectional Committee C42, Definitions of Electrical Terms, and for some years was chairman of Sectional Committee C40 on Storage Batteries.

[1] Standardization in Milwaukee, Wisconsin. Government Standards, 2, by Samuel P. Kaidanovsky, THE MAG OF STDS, p. 305, Oct 1953.

Industrial Engineering Terminology. First edition. 1955. 50 pp. American Society of Mechanical Engineers, 29 W. 39 Street, New York 18, N.Y. $1.50

Prepared by ASME's Work Standardization Committee, definitions of 500 industrial engineering terms are given, aimed at greater uniformity in terminology used by management. The definitions range from such simple terms as "standard" to entire series of complex production terms. Among the definitions are concise descriptions of the flow process chart and the simo chart, of job classification and evaluation, of process layout and work station. Various instruments such as the marstochron and the kymograph are defined, as well as terms such as "therblig," coined by Frank B. Gilbreth to designate subdivisions of work in his classification of physical motions and associated mental processes.

Before publication, the definitions were submitted to 40 practicing management consultants and to an equal number of committee associates. Because of international interest in standardization of management terms they were also circulated to the terminology committee of Australia, Canada, South Africa, and the United Kingdom. A subcommittee on Management Terminology had been set up by the International Committee on Scientific Management in 1950, limited to the English-speaking countries, and the need for international standardization of terms had again been emphasized at the Ninth International Management Congress at Brussels in 1951.

H. B. Maynard, president of Methods Engineering Council, Pittsburgh, Pa., is chairman of the ASME Work Standardization Committee.

AMERICAN SOCIETY FOR TESTING MATERIALS

1916 Race Street
Philadelphia 3, Pa.

Bibliography and Abstracts on Electrical Contacts. (ASTM Special Technical Publication No. 56-H) June, 1954. Heavy paper cover, 6 x 9, 80 pp. $1.00

The first supplement to the 1952 edition, including all new references collected up to January 1, 1954. Includes a subject index, author index, and references listed in numerical order. A separate section gives replacements and new references for the 1934 to 1950 period. 1952 edition is available in paper cover at $5.50.

UNITED STATES DEPARTMENT OF COMMERCE

Business and Defense Services Administration, Washington 25, D. C.

Douglas Fir Plywood, Commercial Standard CS45-55 (Ninth Edition), Superintendent of Documents, Government Printing Office, Washington 25, D. C. 15 cents.

A revision of the 1948 edition. Provides requirements for seven grades of Interior type and six grades of Exterior type covered in the previous edition, also two special items of Interior type, another grade of Exterior type, and descriptive paragraphs and rules governing the manufacture of overlaid plywood. Also includes reproductions of the Association's new inspection certificate and Registered Grade trademarks.

AMERICAN WELDING SOCIETY

33 West 39th Street
New York 18, New York

Recommended Safe Practices for Inert-Gas Metal-Arc Welding, A6.1-55T. American Welding Society, 33 W. 39 St., New York 18, N.Y. 50 cents.

First publication covering all aspects of safety involved in the use of inert-gas metal-arc welding. Represents the findings of a special subcommittee of the AWS Committee on Safety Recommendations, and is based on laboratory studies, experience of industry, and review of the literature and industrial records.

All known potential hazards peculiar to the inert-gas metal-arc process are covered.

Focuses attention on the hazard of trichloroethylene when used in the vicinity of inert arc welding. Decomposition of trichloroethylene vapor by radiation from the welding arc produces noxious fumes including phosgene. This chemical, often used in degreasing operations, should be so located that even minute quantities of vapor will not come in contact with the welding arc.

Also outlines adequate control measures for protecting workers from ultraviolet radiation and metal fumes produced in inert-gas metal-arc welding.

Recommended Practices for Metallizing: Part IC—Application of Metallized Coatings to Protect Against Heat Corrosion. 1955. American Welding Society. 50 cents.

The third report in the series deals with the application of metallizing for providing protection against heat corrosion for temperatures up to and over 1800 F. Equipment requirements and methods of surface preparation are listed in detail. The metallizing procedure, including wire and sealer compositions, and inspection tests, are also given as well as typical coatings for specific applications.

International Recommendations for Alternating-Current Circuit Breakers

by V. L. Cox

Part 1 of the second chapter of an international Specification for Alternating Current Circuit Breakers was issued recently by the International Electrotechnical Commission as IEC Publication No. 56-2. The first chapter (Publication No. 56-1) was issued in 1954.

This new publication deals with normal-load ratings of circuit breakers such as rated normal current, rated frequency, and the rated supply voltage of auxiliary apparatus which are dependent upon thermal considerations. It also lists the thermal tests required to prove these ratings, and gives rules for their conduct.

Though the IEC national committees in the required number of countries voted their approval to assure publication of this document, the United States National Committee did not. This was due to the fact that certain permitted values of total temperature and temperature tests specified following interruption tests were at variance with American practice which already had been developed by industry and set forth in American Standards. The U.S. representatives were not willing to change U.S. industry's practice in these matters at the present time. The IEC has recorded these objections in the Preface to the publication.

As a basis for international understanding of the terms in which normal load ratings of circuit breakers are stated and the tests required to substantiate them, this new document should be valuable as an aid to those countries which are preparing national standards relating to circuit breakers.

Copies of these publications may be obtained through the American Standards Association at the following prices:

No. 56-1 Chapter I. Rules for Short Circuit Conditions	$4.00
No. 56-2 Chapter II. Rules for Normal Load Conditions. Part I Rules for Temperature Rise	$2.00

Mr Cox is chairman of ASA Sectional Committee C37 on Power Circuit Breakers. He is manager of Laboratories, Switchgear and Control Division, General Electric Company, Philadelphia, Pa.

American Standards Are Good Policy

It is considered good policy for the user to make sure that the pipe fittings he buys are made according to American Standards and carry the name or trade mark of a known manufacturer, says *Home Comforts Wholesaler,* April 1955.

"American manufacturers working through committees of engineers in cooperation with the Manufacturers Standardization Society of the Valve and Fittings Industry have developed standards of strength, quality, and dimensions (permitting interchangeability) which have been accepted by engineers, architects, contractors, federal, state, and municipal authorities, and other users," the magazine points out. "The standards so developed insure the manufacture of pipe fittings which are safe for the services for which they are intended, thus affording protection of property, life, and the health of our citizens.

"These standards have been designated as American Standards by the American Standards Association (ASA) which is the recognized national standardization body in the United States.

"American-made pipe fittings are identified by the manufacturer's name or trademark, as required by these standards.

"Federal, state, and municipal buyers specify in their purchases that pipe fittings must meet the requirements of the American Standards."

V. H. Leichliter

Leichliter on ASA Board

Van H. Leichliter, vice-president of operations, American Steel & Wire Division, United States Steel Corporation, has been elected to membership on the American Standards Association's Board of Directors. Mr Leichliter was elected to fill the unexpired term of the late J. H. McElhinney.

Mr Leichliter started his career as metallurgist with American Steel & Wire in 1930 after graduation with a degree in metallurgy from the Pennsylvania State College.

By 1935 he had become district metallurgist in Cleveland, and was made assistant superintendent of the Newburgh Works a year later. Since that time he has served as superintendent of the wire mills at Cleveland's Cuyahoga Works, as superintendent of the wire mills at Worcester's South Works, as division superintendent, and as general superintendent. He was named assistant vice-president of operations in 1950.

Mr Leichliter is a member of the American Iron and Steel Institute and a member of the Institute's committee on manufacturing problems. He belongs to the American Society for Metals, the Wire Association, American Ordnance Association, the Cleveland Chamber of Commerce, and the Association of Iron and Steel Engineers.

FROM OTHER COUNTRIES

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Orders may also be sent to the country of origin through the ASA office. Titles are given here in English, but documents are in the language of the country from which they were received. An asterisk * indicates that the standard is available in English as well. For the convenience of readers, the standards are listed under their general UDC classifications. In ordering please refer to the number following the title.

025 LIBRARY ADMINISTRATION

Poland (PKN)

4 standards for different library forms — PN N-09004,-07, PN N-01152/3

05 PERIODICALS

Germany (DNA)

International rules for abbreviation of titles — DIN 1502, Bb 1

542 EXPERIMENTAL CHEMISTRY

Germany (DNA)

4 standards for different laboratory glassware — DIN 12242/43, 12363, DIN 12905

United Kingdom (BSI)

Glass electrodes — 2586:1955

543 ANALYTICAL CHEMISTRY

Poland (PKN)

30 standards for different inorganic reagents — PN series C-80001 . . .

4 standards for quantitative analysis terminology — PN C-01051/54

General terminology of organic compounds — PN C-01000

3 standards for chemical analysis of organic fats — PN C-04281/83

549 MINERALOGY

France (AFNOR)

2 standards for different chemical analysis of manganese ores — NF A 06-1006, -108

614.8 PREVENTION OF ACCIDENTS

Australia (SAA)

Standard rules for the prevention of electric shock to manual metal arc welding operators — CC.5-1954

Germany (DNA)

3 standards for protective measures against x-rays — DIN 6811/13

Poland (PKN)

2 standards for protective clothing — PN Z-08055, -62

614.84 FIRE BRIGADE

France (AFNOR)

Fire fighting drum and hand pump — NF S61-803

Netherlands (HCNN)

Underground fire hydrant — N 947

Poland (PKN)

6 standards for hose connectors and parts — PN M-51005/06, -51010, PN M-51013/15

Chassis for motorized fire truck — PN S-47050

615.478 HOSPITAL EQUIPMENT

Finland (SFS)

Rectangular cases for gauze bandages, perforated for use in autoclaves — Z.IV.72

Bedside table for hospitals — Z.IV.204

615.84 ELECTROTHERAPY

Germany (DNA)

X-ray machines for medical purposes — DIN 6822

621.1 STEAM. STEAM ENGINES. BOILERS

Chile (INDITECNOR)

Steam generators; terminology — INDITECNOR 34-10

Steam generators; general rules for their installation — INDITECNOR 34-11

Steam generators; rules for supplying feed water — INDITECNOR 34-12

Steam generators; inspection and safety precautions — INDITECNOR 34-13

Steam generators; safety appliances — INDITECNOR 34-15

Germany (DNA)

Valve assembly 10-50 mm nominal size — DIN 33100/01

Valve stuffing glan — DIN 33110

Eye-bolts and hooks for coupling — DIN 33221

Locomotive boiler safety valve — DIN 33181

Water level glass tube — DIN 33263

Locomotive cylinder safety valves 40-70 mm — DIN 35080

621.3 ELECTRICAL ENGINEERING

Argentina (IRAM)

Loudspeaker testing — IRAM 4034

Australia (SAA)

Electric ranges and components

Fixed domestic electric ranges (quality requirements) — C.310-1953

Electric hotplates — C.311-1953

Multi-heat switches (manually operated types) — C.312-1953

Domestic electric ranges (safety requirements) — C.146-1954Ap

(The above four standards are bound together in one booklet)

Belgium (IBN)

Supplement to rules for acceptance specifications of rotating machines — NBN 7

Supplement to rules relative to insulated wires and cables for overhead lines — NBN 155

Supplement to rules relative to rubber-insulated telephone and signalization cables — NBN 156

Specification of lead batteries used for starting motor vehicles — NBN 339

Canada (CSA)

Construction and test of rubber-insulated wires and cables — C22.2 No.38-1955

Construction and test of rigid conduit — C22.2 No.45-1955

Specification for communication line hardware — C83.1-1954

Specification for power line hardware — C83.2-1954

Finland (SFS)

Socket packing for cable inlets in electrical appliances — C.V. 10

Antenna contact plugs — C.V. 19

Antenna plug boxes — C.V. 20

Center-plate for antenna plug boxes — C.V. 30

Fixing slots in the meter boards of the one-phase kwh-meters — C.V. 36

Fixing slots in the meter boards of the three-phase kwh-meters — C.V. 38

Germany (DNA)

Selection of different types of protected electrical machines — DIN 40050

Mica insulating material in rolls — DIN 40614

Wooden poles for overhead lines — DIN 48350

Set screws with dog point — DIN 46291

Switch for electric locomotives, 750-1500 V — DIN 43217

Packing rubber ring for lamp glasses — DIN 49984

Ceramic tubing for electric stoves — DIN 44975

Contact rings for electric machines — DIN 42965

Lead-in insulators for transformers, up to 200 amp and 10 to 30 kv — DIN 42531

Circuit breakers 10-25 amp — DIN 49500

Lightning arrester line brackets — DIN 48828

Electric iron heating elements — DIN 44906/8

4 standards for fuses for high voltage lines up to 10 kv — DIN 41569/70, DIN 41683/84

Three-phase, squirrel-cage, asynchronous motor for hoists — DIN 42680

Three-phase, slip-ring, asynchronous motors, enclosed type, for intermittent service — DIN 42674

Tubular copper for bus bars — DIN 1754

Solid copper rounds for bus bars — DIN 1767

Copper channels for bus bars — DIN 46413

Pure aluminum channels for bus bars — DIN 46424

Split-copper cable connecting soldering sleeves — DIN 47650

Junction-box sealing device — DIN 47635

Hanger clamps for overhead lines — DIN 43157

Electric ovens, for agricultural use — DIN 44894

Electric ovens, household type — DIN 44916

India (ISI)

Reversible type two-pin plugs and socket-outlets without earthing connections — IS 370-1954

Israel (SII)

Rubber-insulated electric cables and cords — S.I. 122

Wiring regulations: load on copper conductors and protection against overcurrent — S.I. 108

Japan (JISC)

Fluorescent discharge lamp — JIS C 7601*

South Africa (SABS)

Reinforced concrete poles for telegraph, telephone, power and lighting purposes — 470-1954

Sweden (SIS)

Dry cells and batteries: specifications — SEN 0802

Front plates of electrical apparatus — SEN 280701

4 standards for different type insulators for 2.5-6 mm^2 cables — SEN 300301/03, -06

5 standards for different type ceramic bushings — SEN 300309/10, -13, -16/17

5 standards for ceramic details of bi-polar and three-polar "chandelier" switch terminals — SEN 300320/22, -25/26

4 standards for ceramic bases of binding posts and connecting bars — SEN 300329, -32/33, -36

5 standards for ceramic bases of round junction boxes — SEN 300339/43

5 standards for ceramic bases and details of square junction boxes — SEN 300346/47, -50/51, -54

United Kingdom (BSI)

Electric signs and high-voltage luminous-discharge-tube installations — BS 559:1955

Capacitors for connection to power-frequency systems — BS 1650:1955

621.643 PIPES AND ACCESSORY PARTS

Japan (JISC)

Seamless copper pipe or tube JIS H 3601*
Seamless brass pipe or tube JIS H 3631*

Mexico (DGN)

Brass tubing DGN B 64
Fluxometers DGN B 67
Water faucets DGN B 68

Netherlands (HCNN)

Cast iron waste tubes. Screw plugs with packing ring for traps N 1522

South Africa (SABS)

Standard specification for asbestos cement pressure pipes 286-1951

Switzerland (VSM)

11 standards for copper pipes and different fittings used in gas and water lines VSM 51200/51210
Seamless copper tubes, precision drawn VSM 11551
Seamless brass and copper alloy condenser tubes VSM 11555/56

621.82 SHAFTING, BEARINGS

Spain (UNE)

Roller bearings, quality and tolerances UNE 18026
Needle bearings, quality and tolerances UNE 18027
Splined shafting for automobiles UNE 26092

625.8 PAVING OF ROADS AND HIGHWAYS

Israel (SII)

Asphalt roads: structural specification IS 123

628.2 SEWERS

Germany (DNA)

Rules for connection to municipal sewer system DIN 1987

Israel (SII)

Cast-iron pipes and fittings for sewers I.S. 125

Mexico (DGN)

Asbestos-cement sewer pipes DGN C 29
Asbestos-cement septic tank DGN C 31

629.13 AERONAUTICS. AIRCRAFT ENGINEERING

France (AFNOR)

4 standards for system of numbering of documents pertaining to study and designing different parts of aircrafts NF LO7-710/3
Aircraft bolts. Tolerances NF L22-040
Hexagon head screws NF L22-110
Hexagon head screw with reduced shank NF L22-120
Hexagon nuts, regular NF L22-410
Castle nuts, high and low NF L22-420, -425
Self-locking hexagon nuts NF L22-510
3 types of riveting nuts NF L22-540, NF L22-530, -532
Axles with threaded and drilled ends NF L22-710, -720
Lubricating axle NF L22-750
Aviation type washers NF L23-120
Cotter pins, aviation type NF L23-310
7 standards for different joints and unions NF L44-210/3, -310/2

Spain (UNE)

Determination of moisture content in the wood used in aircraft construction UNE 28012

665.4/.5 MINERAL OILS, FATS AND WAXES

Argentina (IRAM)

Method of test for sulphur in petroleum products by the lamp method IRAM 6534

Poland (PKN)

12 standards for chemical analysis and testing of petroleum products PN C 04004/05, -41, -58, -60, -97, -04135/36, PN C-96040/41, -50, -85

666.7 REFRACTORY PRODUCTS

Mexico (DGN)

Refractory clay for use with refractory bricks DGN C 30

Poland (PKN)

4 standards for chemical analysis and testing of fireproof materials PN H-04156/7, -180, -185
12 standards on fireproof earthenware: classification, testing and technical data PN H-04187, -12000, -12003, -12010/12, -12020, -30/32, -60/61
4 standards for acid proof ceramic pipes and fittings PN C-60014/15, -019, -26

667.6/.8 PAINTS. VARNISHES. LACQUER

Argentina (IRAM)

Copper powder for paints IRAM 1108

Australia (SAA)

Interim specification for paint, interior, fire retardant, gloss SAA Int 228, Oct 1954
Interim specification for paint, interior, fire retardant, flat SAA Int 229, Oct 1954
Interim specification for paint, exterior, non-skid SAA Int 230, Oct 1954

Poland (PKN)

7 standards for testing lacquer PN C-81502, -07, -14, -21, -26, -34, -36

Switzerland (VSM)

Paints and varnishes for safety signs VSM 37050

669 METALLURGY

Chile (INDITECNOR)

Rolled steel for reinforced concrete INDITECNOR 31-103
Steel bars for bolting INDITECNOR 31-104
Steel bars for rivets INDITECNOR 31-105
Steel bars for manufacturing nuts INDITECNOR 31-106

France (AFNOR)

Determination of silicon content in steels and cast iron NF A 06-302
Colorimetric method for determination of antimony in lead NF A 06-509

Italy (UNI)

4 standards for chemical testing of metals UNI 3590/93
3 standards hot rolled steels with high yield point UNI 3543/45
Magnetic carbon steel UNI 3595
3 standards for carbon steel for wire drawing UNI 3596/98

Japan (JISC)

Copper sheet or plate JIS H 3101*

Mexico (DGN)

Brass bars and shapes DGN B 65
Bronze solders DGN B 66
Aluminum and aluminum alloy bars and shapes DGN B 69
Bars for reinforced concrete DGN B 6

South Africa (SABS)

Copper alloy ingots and castings 472/490-1954

Switzerland (VSM)

Aluminum alloys, commercial VSM 10846, B1.1,2,3
Aluminum and aluminum alloy square bars VSM 11874/75

674.83 WOOD WASTE. CORK

Portugal (IGPAI)

2 standards for cork thermal insulating material P-67/68

677 TEXTILES

Chile (INDITECNOR)

Cotton cloth "Osnaburg" INDITECNOR 35-3
Basic cotton fabric INDITECNOR 35-7
4 standards for different threads INDITECNOR 35-12/15
2 types of cotton sheeting INDITECNOR 35-16/17

Poland (PKN)

3 standards for testing cordages PN P-04723/24, -726
4 standards for testing cotton and linen sewing thread PN P-04671/72, -81607, -81006
4 standards for testing cotton yarns PN P-04654/56, -04669
4 standards for testing wool yarns PN P-04667/68, -04676, -04703
5 standards for testing linen and jute yarns PN P-04674/75, -77, -04704, -81802
9 standards for testing silk and artificial silk yarns PN P-81307, -850, -853, -4696/99, PN P-04705/06
29 standards for testing and classification of fabrics PN series P-046 . . . , P-047 . . . , P-82 . . .
2 standards for artificial silk, general definitions PN C-89101, -104

678 RUBBER INDUSTRY

France (AFNOR)

Specifications and test methods of rubber hoses for compressed air PN T 47-112

Poland (PKN)

Classification of rubber used in motor vehicles PN C-01600
2 standards for testing rubber PN C-04249/50

679.5 PLASTIC INDUSTRY

France (AFNOR)

Cellulouse: Determination of copper index lower than 1 NF T 12-004
Cellulose: Contents of "Noble Cellulose" PN T 12-006
Cellulose: Determination of permanganate index NF T 12-007

Netherlands (HCNN)

Determination of surface resistance of hard plastics V 1514
Determination of insulating property of hard plastics V 1515
Rules for testing plastic dinner and drinking articles V 3032
Plastics: Directives for conditioning of test specimens for mechanical tests V 2172
Plastics: Determination of water absorption V 2173

Poland (PKN)

5 standards for different tests of plastics PN C-89030/32, -34, -36

Switzerland (VSM)

Laminated paper and fabric plastic plates VSM 11922/23

679.8 STONE INDUSTRY

Poland (PKN)

5 standards for stone cutting PN B-54050, -52/53, PN K-54050/51

683.9 STOVES, GRATES, RANGES

Poland (PKN)

34 standards for component parts of different types of stoves PN Series M-40 . . .

691.1 BUILDING MATERIAL

Israel (SII)

Strength of concrete: general requirements, categories, sampling, testing, etc S.I. 118

United Kingdom (BSI)

Polystyrene tiles for walls and ceilings BS 2552:1955

74 DRAWING

Netherlands (HCNN)

Welding graphical symbols V 3046

Poland (PKN)

2 standards for lettering PN B-01004, N-95036

77 PHOTOGRAPHY

France (AFNOR)

Dimensions of microcopies supports NF Z43-001
35 mm microfilms NF Z43-010
16 mm microfilms FD Z43-020
Microfiche films 105mm x 150mm NF Z43-030
Microfiche films 75mm x 125mm NF Z43-031
Sensitometry: Determination of exposure index for highly sensitive negative emulsions NF S 20-001

Germany (DNA)

Lantern slides DIN 4538

United Kingdom (BSI)

Definition of cinematograph 'safety' film BS 850:1955
Recommendations for the storage of microfilm BS 1153:1955
Dimensions of dental x-ray films BS 2585:1955

Barth and Benoit Head Mechanical Standards Board

NEW officers of the Mechanical Standards Board are heading the American Standards Association's work in the mechanical engineering field this year. W. L. Barth, Executive Secretary of General Motors Engineering Standards Committee, is chairman. Lester W. Benoit, Executive Secretary of the Manufacturers Standardization Society of the Valve and Fittings Industry, is vice-chairman.

W. L. Barth

L. W. Benoit

Mr Barth, who has been with General Motors for 30 years, is in charge of the GM Engineering Standards Section as well as serving as Executive Secretary of the Standards Committee. He has been active in the standardization activities of ASA and of the Society of Automotive Engineers for many years. Although he represents the Automobile Manufacturers Association on the Mechanical Standards Board, he represents SAE on a number of sectional committees, including those on machine tools, bolts and nuts, washers, and surface roughness. He is chairman of Sectional Committee B27 on washers, and chairman of the Executive Committee of Sectional Committee B46 on Surface Roughness.

Because of his special interest in standardization of bolts and nuts and screw threads, he has been an active member-at-large on Sectional Committee B1, Screw Threads. The part he played in helping to bring about unification of screw threads by the United Kingdom, Canada, and USA was recognized with a certificate of appreciation presented by the Society of Automotive Engineers. He has also been cited by the Amercian Society of Mechanical Engineers for outstanding contributions in the field of mechanical standardization, the only time ASME has presented such a citation to a non-member.

Mr Barth has a background of practical production experience in sheet metal shops, inspection departments, in experimental departments in automobile plants, and as a designer. Before entering the automobile business he designed many business machines and gadgets. In the automobile business he has been particularly interested in the design of transmission systems, rear axles, and the like. He transferred from research to standardization some 20 years ago.

Mr Benoit has been in the valve business since the start of his career in 1923. His first experience was as assistant to the Chief Engineer of Jenkins Bros Valve Manufacturers at Bridgeport, Connecticut. There he had a part in all phases of the work of building a new Division to manufacture iron body valves. In 1926 he started his work on standards, when he became engineer in charge of company standards, product design, and development of the Valve Division, American Chain & Cable Company at Bridgeport. He has been executive secretary of MSS since 1945.

Mr Benoit has taken an active interest in development of American Standards as a representative of his Society. He is secretary of the sectional committees on cast-iron pipe flanges and flanged fittings, B16, and on the code for pressure piping, B31. He is also a member of sectional committees on a scheme for identification of piping systems; on hose coupling screw threads; drawings and drafting room practice, and graphical symbols. He is chairman of the Conference of Executives of Organization Members of the American Standards Association.

★ ★ ★

It is not enough to say simply that standards have promoted the American economy. Standards have made the American economy. Our whole mass production system is built on, in, and around standards. They are so basic to our industrial, business and commercial life that the concept of *standards* and of *national economy* cannot be considered separately. Without standards of dimension, of definition, of performance, of testing, of safety, our American machine would simply grind to a halt.—*Vice Admiral G. F. Hussey, Jr, (USN, ret), Managing Director, American Standards Association.*

★ ★ ★

AMERICAN STANDARDS

Status as of June 1, 1955

Acoustics

American Standard Published—

Characteristics of Analyzers Used for the Analysis of Sounds and Vibrations, Method for Specifying, Z24.15-1955 $0.50
Sponsor: Acoustical Society of America

Building

American Standards Published—

Gypsum Plastering, Specifications for, A42.1-1955 (Revision of 42.1-1950) $0.75
Sponsors: American Institute of Architects; American Society for Testing Materials
Preparation for plastering, materials specifications, proportioning, mixing, application, and finishing of gypsum plaster.

Interior Lathing and Furring, Specifications for, A42.4-1955 (Revision of A42.4-1950) $0.75
Sponsors: American Institute of Architects; American Society for Testing Materials
Materials specifications and installation requirements for all types of lathing and furring for interior walls and ceilings.

In Standards Board—

Building Code Requirements for Minimum Design Loads in Buildings and Other Structures, A58.1 (Revision of A58.1-1945)
Sponsor: National Bureau of Standards

Standard Submitted—

Standard Types of Building Construction, NFPA 220; ASA A110.1
Sponsor: National Fire Protection Association

Chemical Industry

Project Initiated—

Centrifugal Pumps for Chemical Industry Use
Requested by: Chemical Industry Advisory Board

Consumer Goods

American Standard Published—

Sampling and Chemical Analysis of Alkaline Detergents, Method of, ASTM D501; ASA K60.21-1955 (Revision of ASTM D501-49; ASA K60.21-1950) $0.30
Sponsor: American Society for Testing Materials

In Standards Board—

Computing Food-storage Volume and Shelf Area of Automatic Household Refrigerators, Method of, B38.1 (Revision of B38.1-1944)
Sponsors: American Society of Refrigerating Engineers; U.S. Department of Agriculture, Home Economics Research Branch

Legend

Standards Council—Approval of Standards Council is final approval as American Standard; usually requires 4 weeks.

Board of Review—Acts for Standards Council and gives final approval as American Standards; action usually requires 2 weeks.

Standards Boards—Approve standards to send to Standards Council or Board of Review for final action; approval by standards boards usually takes 4 weeks.

Electrical

American Standards Approved—

Wet Process Porcelain Insulators, Suspension Type, (EEI TDJ-52; NEMA 140-1952), C29.2-1955

Wet Process Porcelain Insulators, Spool Type, (EEI TDJ-53; NEMA 141-1952), C29.3-1955

Wet Process Insulators, Strain Type, (EEI TDJ-54; NEMA 142-1952), C29.4-1955

Wet Process Porcelain Insulators, Low- and Medium-voltage Pin Type, (EEI TDJ-55; NEMA 143-1952), C29.5-1955

Wet Process Porcelain Insulators, High-Voltage Pin Type, (EEI TDJ-56; NEMA 144-1952), C29.6-1955

Wet Process Porcelain Insulators, High-voltage Line-post Type, (EEI TDJ-57; NEMA 145-1952), C29.7-1955
Sponsor: Electrical Standards Board

In Standards Board—

Terms for Audio Techniques, Definitions of, C16.24; 54 IRE 3.S1
Sponsor: Institute of Radio Engineers

Terms of Electron Tubes, Definitions of, C60.9

Terms of Magnetrons, Definitions of, C60.10

Terms of Gas Filled Radiation Counter Tubes, Definitions of, C60.12
Sponsor: Joint Electron Tube Engineering Council

Project Initiated—

Terminology for Automatic Controls, C85
Sponsor: American Society of Mechanical Engineers

Materials and Testing

American Standards Published—

Primer for Use With Asphalt in Dampproofing and Waterproofing, Specifications for, ASTM D41-41; ASA A109.1-1955 $0.30
Sponsor: American Society for Testing Materials
Viscosity, distillation, penetration, and solubility requirements for asphaltic primer for use with asphalt in dampproofing and waterproofing for application to concrete and masonry surfaces.

Test for Steam Distillation of Bituminous Protective Coatings, Method of, ASTM D255-28; ASA A109.11-1955 $0.30
Sponsor: American Society for Testing Materials
Apparatus and procedures for the separation and recovery of the solvent and the base in bituminous mixtures by distillation of the mixture in a current of steam and separation of the solvent from the water in the condensate.

Natural Muscovite Mica Based on Visual Quality, Specifications for, ASTM D351-53T; ASA C59.27-1955
Sponsor: American Society for Testing Materials
Establishes a visual system of classifying quality; and includes size grading for block mica films (uncut), thickness, classification of visual quality, tests for identifying muscovite mica, and terminology. Also includes verbal descriptions of visual quality classifications, method of measuring optical axial angle of mica and classification of muscovite splittings.

In Standards Board—

Nickel Seamless Pipe and Tubing, Specifications for, ASTM B161-49T; ASA H34.1

Nickel-Copper Alloy Seamless Pipe and Tubing, Specifications for, ASTM B165-49T; ASA H34.2

Nickel - Chromium - Iron Alloy Seamless Pipe and Tubing, ASTM B167-49T; ASA H34.3

Hardness Conversion Table for Cartridge Brass (Relationship between Diamond Pyramid Hardness, Rockwell Hardness, and Brinell Hardness), ASTM E33-42; ASA Z76.1

Hardness Conversion Tables for Steel (Relationship between Diamond Pyramid Hardness, Rockwell Hardness, and Brinell Hardness), ASTM E48-43T; ASA Z76.2

Hardness Conversion Table for Nickel and High-Nickel Alloys (Relationship between Diamond Pyramid Hardness, Brinell Hardness, and Rockwell Hardness), ASTM E93-52; ASA Z76.3

Analysis of Natural Gases for the Volumetric - Chemical Method, Method for, ASTM D1136-53; ASA Z77.1

Analysis of Natural Gases and Related Types of Gaseous Mixtures by the Mass Spectrometer, Method for, ASTM D1137-53; ASA Z77.2

Test for Water Vapor Content of Gaseous Fuels by Measurement of Dew-Point Temperature, Method of, ASTM D1142-53; ASA Z77.3

Sampling Natural Gas, Method of, ASTM D1145-53; ASA Z77.4
Sponsor: American Society for Testing Materials

Mechanical

American Standard Approved—

Deep Well Vertical Turbine Pumps, Specifications for, B58.1-1955
Sponsor: American Water Works Association

In Standards Board—

System for Straight Beval Gears, B6.13
Sponsors: American Gear Manufacturers Association; American Society of Mechanical Engineers

Withdrawal Being Considered—

Rotary Cone Valves, B61
Requested by: American Society of Mechanical Engineers

Mining

American Standard Approved—

Quarry Safety Code, M28.1-1955
Sponsor: National Safety Council

Standard Submitted—

Recommended Practice for Drainage of Coal Mines, M6 (Revision of M6-1931)
Sponsor: American Mining Congress

Petroleum Products and Lubricants

American Standards Approved—

Test for Distillation of Gasoline, Naphtha, Kerosine, and Similar Petroleum Products, Method of, ASTM D86-54; ASA Z11.10-1955 (Revision of ASTM D86-53; ASA Z11.10-1953)

Test for Distillation of Natural Gasoline, Method of, ASTM D216-54; ASA Z11.11-1955 (Revision of ASTM D216-53; ASA Z11.11-1953)

Test for Distillation of Gas Oil and Similar Distillate Fuel Oils, Method of, ASTM D158-54; ASA Z11.26-1955 (Revision of ASTM D158-53; ASA Z11.26-1953)

Test for API Gravity of Petroleum and Its Products, Method of (Hydrometer Method), ASTM D287-54; ASA Z11.31-1955 (Revision of ASTM D287-52; ASA Z11.31-1952)

Test for Distillation of Crude Petroleum, Method of, ASTM D285-54T; ASA Z11.32-1955 (Revision of ASTM D285-52; ASA Z11.32-1952)

Test for Neutralization Value (Acid and Base Numbers) by Potentiometric Titration, Method of, ASTM D664-54; ASA Z11.59-1955 (Revision of ASTM D664-52; ASA Z11.59-1952)

Test for Saponification Number of Petroleum Products by Potentiometric Titration, Method of, ASTM D939-54; ASA Z11.67-1955 (Revision of ASTM D939-52; ASA Z11.67-1952)

Test for Specific Gravity of Petroleum and Its Products (Hydrometer Method), Method of, ASTM D1298-54; ASA Z11.84-1955
Sponsor: American Society for Testing Materials

Photography

American Standards Published—

Photographic Grade Hydroquinone, Specifications for, PH4.126-1955 (Revision of Z38.8.126-1949) $0.35
Sponsor: Photographic Standards Board
Requirements are given for the physical and chemical properties of the indicated chemical to insure its satisfactory use for photographic processing purposes.

Photographic Grade Potassium Bromide, Specification for, PH4.200-1955 (Revision of Z38.8.200-1949) $0.25
Sponsor: Photographic Standards Board
Requirements are given for the physical and chemical properties of the indicated chemical to insure its satisfactory use for photographic processing purposes.

Photographic Grade Benzotriazole, Specification for, PH4.204-1955 (Revision of Z38.8.204-1948) $0.25
Sponsor: Photographic Standards Board

16mm Sound-Focusing Test Film, PH22.42-1955 (Revision of Z22.42-1946) $0.25
Sponsor: Society of Motion Picture and Television Engineers
Specifies a test film to be used for checking the focus of the scanning beam of 16mm sound motion picture projectors.

16mm 400-Cycle Signal-Level Test Film, PH22.45-1955 (Revision of Z22.45-1946) $0.25
Sponsor: Society of Motion Picture and Television Engineers
Specifies a 400-cycle signal-level test film for use in testing 16mm sound motion picture projection equipment.

16mm Buzz-Track Test Film, PH22.57-1955 (Revision of Z22.57-1947) $0.25
Sponsor: Society of Motion Picture and Television Engineers
Specifies a buzz-track test film used for checking the lateral position of the sound scanning beam in 16mm motion picture sound reproducers.

16mm Motion-Picture Projector For Use With Monochrome Television Film Chains Operating On Full Storage Basis, PH22.91-1955 $0.35
Sponsor: Society of Motion Picture and Television Engineers
Applies to the use of 16mm motion picture projectors with monochrome television film chains operating on a full-storage basis where the projector advances the film intermittently. Specifications are given for their essential characteristics.

35mm Magnetic Azimuth Alignment Test Film, PH22.99-1955 $0.25
Sponsor: Society of Motion Picture and Television Engineers
Specifies a test film to be used in aligning the azimuth of magnetic heads on 35mm magnetic recording and reproducing equipment where the head width is not greater than 0.200 inch and where the dimensions and location of the sound tracks are in accord with American Standard PH22.86-1953, 200-Mil Magnetic Sound Tracks on 35mm and 17½mm Motion Picture Film, or the latest revision thereof approved by ASA.

American Standards Approved—

Dimensions for Medical X-ray Film Cassettes (Inch and Centimeter Sizes), PH3.21-1955
Sponsor: Photographic Standards Board

Distance Scales for Focusing Camera Lenses, PH3.20 (Revision of Z38.4.3-1947 and Z38.4.13-1948)
Sponsor: Photographic Standards Board

In Standards Board—

Dimensions for 70mm Perforated Film for Cameras Other Than Motion Picture Cameras, PH1.20

Focal Length of Lenses: Markings, PH3.13 (Revision of Z38.4.4-1942)
Sponsor: Photographic Standards Board

16mm Film Perforated One Edge, Usage in Camera, PH22.15 (Revision of Z22.15-1946)

16mm Film Perforated One Edge, Usage in Projector, PH22.16 (Revision of Z22.16-1947)

35mm 3-Track Magnetic Flutter Test Film, PH22.98
Sponsor: Society of Motion Picture and Television Engineers

Reaffirmations Being Considered—

Sound Focusing Test Film for 35mm Motion Picture Sound Reproducers (Service Type), PH22.61 (Reaffirmation of Z22.61-1949)

Buzz-Track Test Film for 35mm Motion Picture Sound Reproducers, PH22.68 (Reaffirmation of Z22.68-1949)
Requested by: Society of Motion Picture and Television Engineers

Pipes and Fittings

New Project Requested—

Plastic Pipe

Safety

American Standard Published—

Safety Code for Industrial Power Trucks, B56.1-1955 (Revision of B56.1-1950) $1.00
Sponsor: American Society of Mechanical Engineers
Safety requirements relating to the elements of design, operation, and maintenance of industrial power trucks of both the driver-ride and driver-lead type, such as platform trucks, tractors, low-lift trucks, high-lift trucks, fork trucks, special industrial trucks, etc, but not including motor vehicles intended for use upon land highways.

In Board of Review—

Prevention of Dust Explosions in Flour and Feed Mills, Code for, Z12.3 (Revision of Z12.3-1953)

Prevention of Dust Explosions in Terminal Grain Elevators, Code for, Z12.4 (Revision of Z12.4-1953)

Prevention of Dust Ignitions in Country Grain Elevators, Code for, Z12.13 (Revision of Z12.13-1953)
Sponsor: National Fire Protection Association

In Standards Board—

Safety Code for Elevators, Dumbwaiters, and Escalators, A17.1 (Revision of A17.1-1937)
Sponsors: American Institute of Architects; National Bureau of Standards; American Society of Mechanical Engineers

New Projects Requested—

Auto Seat Safety Belts
Requested by: Association of Casualty and Surety Companies, Accident Prevention Department; Industrial Safety Equipment Association

Safety Code for Lawn Mowers
Requested by: Lawn Mower Institute

WHAT'S NEW ON AMERICAN STANDARD PROJECTS

Shockproof Cable Terminals and Receptacles for Use on X-Ray Equipment, C86—

Sponsors: General Services Administration; National Electrical Manufacturers Association

The first Federal Standard submitted by the General Services Administration for approval as American Standard was considered by a general conference February 15. This is Federal Standard No. 72, Shockproof Cable Terminal and Receptacle for Use on X-Ray Equipment.

The conference recommended that the standard be approved and that a sectional committee be organized to consider future revisions. The General Services Administration and the National Electrical Manufacturers Association were proposed as co-sponsors. The scope recommended covers:

"Standards for dimensional interchangeability, rating, and performance requirements of shockproof high voltage cable terminals and receptacles for use on x-ray equipment."

The standard has been sent to letter ballot of those invited to attend the February 15 conference for their vote on whether to recommend ASA approval.

The Power Division of the Electrical Standards Board would supervise the proposed project.

Exhaust Systems, Z9—

Sponsors: American Industrial Hygiene Association; American Society of Heating and Air Conditioning Engineers; National Association of Fan Manufacturers.

Work on standards for exhaust ventilation for mechanical cutting and abrading operations is being started by a subcommittee set up recently by the sectional committee. Jack Bailiff, chief, Engineering Unit, Division of Industrial Hygiene, New York State Department of Labor, is chairman. The first meeting of the subcommittee was held March 22.

• Items on the agenda of Technical Committee 36, Cinematography, at its Stockholm meeting in June, were discussed at a joint meeting of the Society of Motion Picture and Television Engineers Standards Committee and Committee PH22 of the American Standards Association in April. The meeting was held during the 77th convention of the SMPTE in Chicago. Among subjects discussed were: motion picture film dimensions, definition and methods of marking safety motion picture film, screen brightness in theatres and review rooms, location and dimension of magnetic sound tracks, reproduction characteristics of magnetic sound tracks and wide-screen motion pictures.

Graphical Symbols, Y32—

Sponsors: American Institute of Electrical Engineers; American Society of Mechanical Engineers.

A new field in the work on graphical symbols is being developed by a Task Force on Fluid Power Diagrams. Chairman is Kenneth Court, Vickers, Incorporated, Detroit, Michigan. The group is planning first to study the symbols developed by the Joint Industry Conference (JIC) to determine their suitability for inclusion in an American Standard.

Ask for Interchangeable Dimensions for Plastic Pipe

Declaring a national need for plastic pipe standards, 35 representatives of manufacturers and consumers of plastic pipe urged the American Standards Association May 5 to initiate a project for uniform dimensions. The group voted at a general conference in New York that the association organize a committee to develop the standards. It will be composed of representatives of all national organizations having sufficient interest in savings which the program will effect.

The Society of the Plastics Industry and the American Society of Mechanical Engineers will take administrative leadership in the project as joint sponsors for the proposed American Standard.

The project will establish a new sectional committee to deal with tolerances, product markings, and shop tests for plastic pipe.

Joseph Manuele

• The American Standard for Surface Roughness, Waviness, and Lay, B46.1-1955, was the subject of an address April 18 by Joseph Manuele. Mr Manuele is director of headquarters quality control, Westinghouse Electric Corporation, Pittsburgh, Pa, and represents the National Electrical Manufacturers Association on Sectional Committee B46, Surface Roughness. He spoke on the engineering application of the new edition of the standard in determining roughness values, and in the choice of roughness measuring instruments. His paper was presented before a session of the diamond jubilee spring meeting of the American Society of Mechanical Engineers at Baltimore, Maryland.

Copies (ASME paper 55-S-11) can be obtained from the Society, 29 W. 39 Street, New York 18, N.Y. at 50 cents each.

MATERIALS HANDLING IN FORMOSA—Ox pulls pipe fabricated in USA for installation in Nan-Pu power plant of the Taiwan Power Company. Specification for pipe provides "The latest published revisions of the ASTM and ASA Specifications and ASME Codes shall apply." Specifically mentioned in the sections on Materials and Workmanship are the ASME Power Boiler Code, and the American Standard Code for Pressure Piping, B31.1. The pipe shown in this picture was fabricated by the Power Piping Division of the Blaw-Knox Company.

Centrifugal Pumps—

A proposal by the chemical industry for standardizing centrifugal pumps—a project it is estimated may save $6,800,000 annually to the chemical industry alone — has been presented to the American Standards Association.

Manufacturers, users, and designers of centrifugal pumps voted April 7 at a general conference to ask ASA to organize a national committee. A primary purpose of the committee's work would be to develop American Standard dimensions and features which would further interchangeability of pumps made by different manufacturers.

The conference proposed that the Manufacturing Chemists Association, Inc, and the Hydraulic Institute be invited to accept leadership for the standards program as co-sponsors of the project.

Low pressure centrifugal pumps and base plates for use in the chemical industry—those broadly classified as horizontal, end-suction, and single-stage, will be covered by the committee's work. The approximate capacity range is from five to one thousand gallons per minute, temperature to 500 F.

The Chemical Industry Advisory Board that proposed the project to ASA pointed out the benefits expected from this work. J. G. Henderson, chairman of the Board, estimated that as much as $200 on each pump might be saved users. This saving would be due to lower replacement costs, design time, construction labor, storeroom space, and decreased maintenance costs.

Pump manufacturers, Mr Henderson emphasized, will reap enormous savings through the elimination of "specials"

A number of anticipated benefits outlined by the Chemical Industry Advisory Board in requesting the project were:

(1) Important monetary savings to the chemical industry because of lower replacement costs due to dimensional interchangeability; reduction in capital investment for new construction through reduction in design time, construction labor, and storeroom space; and decreased maintenance costs because of certain standardized features.

(2) Savings to pump manufacturers through uniform specifications and the elimination of many special requirements.

(3) Reduction in manpower requirements and consumption of essential materials.

(4) A clearer understanding of each other's problems through the exchange of information between manufacturer and user.

A comparison of commercially available pumps shows that many dimensions differ only to a slight degree for no obvious functional reasons, and that certain features of the pumps will lend themselves to standardization without impairing the manufacturer's competitive position. This was revealed in the report of a subcommittee of the Chemical Industry Advisory Board.

Representatives of national organizations and individual companies prominent in the following fields attended the conference and voted unanimously in favor of the proposed new project: pumps and accessories; chemicals; pharmaceuticals; plastics; rubber; petroleum; paints; soaps and glycerin; mechanical packing materials suppliers; and the military services.

A New Motion Picture on Standards

A True Standard. National Bureau of Standards Film, 16 mm, sound, color. Running time: 12 minutes. (For information about the loan or sale of this film, write Office of Scientific Publications, National Bureau of Standards, Washington 25, D.C.)

The step-by-step relationship between the international standard of

mass and the test weights used by an inspector in testing store scales is told in story form and the way in which accuracy is maintained in commercial weighing is shown. Film action takes place in the International Bureau of Weights and Measures in Sevres, France; the National Bureau of Standards in Washington, D.C.; a State Office of Weights and Measures; and in a modern super market.

The film also serves as an introduction to the theory of substitution weighing. This method is used widely and is recommended for very accurate weight determinations in science, industry, and commerce. A second version of the film containing a 7-minute instruction section on the method of substitution weighing is also available to specialized audiences.

Washing Tests for Textiles

The American Association of Textile Chemists and Colorists has just approved a tentative test method for determining colorfastness of textiles using alternate exposure to light and to washing. This provides test methods that correlate closely with consumer use of textiles. The test is one of those sent to letter ballot of Committee L14, Textile Test Methods, for recommendation on approval as American Standard.

The washing test used is an accelerated test known as 3A. This is one of three washing tests just given official approval by AATCC, known as Accelerated Washing Tests 2A, 3A, and 4A. They were developed by AATCC's Committee on Colorfastness to Washing in order that the textile industry can test washfastness of fabrics in a short time. The tests predict more accurate information concerning the colorfastness of textiles under repeated mechanical launderings than had been possible with older tests.

QUINCY BENT

Quincy Bent, retired vice-president of the Bethlehem Steel Company, and a former member of ASA's Board of Directors, died May 5. Mr Bent was 75.

STANDARDS OUTLOOK

by LEO B. MOORE

PROFESSIONAL STATURE

Every day I see fresh evidence of increasing interest in standardization. On the one hand, young engineers are beginning to look upon standards work as a promising opportunity for them in their companies. On the other, standards engineers active in the field are spending more time on standardization itself to the exclusion of other matters that used to concern them. By broadening the scope of their standardization effort, they are enlarging their responsibilities and themselves, and paving the way to positions of greater importance. Management, in my opinion, will encourage these advances if we become professional in our attitude and our thinking.

Managements today are in a desperate search for talent. The long war years when young men would be gaining experience and depth took their toll in terms of preparing men for the succession to the top. This is coupled with the increasing realization of the long-run value of engineering to the industrial enterprise.

In many ways engineers are now receiving greater recognition for their large contributions to the economy. One of these ways is the introduction of engineers into the administrative functions of the business.

Managements are finding that certain specific engineering activities are particularly worthwhile sources of administrative talent. I have in mind especially those engineering activities that are regularly concerned with the economics of their decisions and with the impact of their activities on the total effort. Industrial engineering, for example, has long been a stepping stone up the managerial ladder for these reasons. I strongly believe that standardization will finally become recognized for these same values.

Standardization can furnish the vehicle to the top—but only the vehicle. Standardization has this opportunity because it has concern for the whole enterprise, for the economics of its decisions, and for progress into the future. It has made large advances as a professional endeavor in the eyes of the industrial community. The varied activities of ASA have contributed to a large degree in this direction. The Company Member Conference, to mention one such activity, has accomplished this on a national basis. But its truly significant achievements have been on an international level where the worth of standardization has become increasingly evident not on a simple economic basis bus on a high plane of international cooperation.

For recognition on a professional level, these same high purposes must be pursued by each individual company standards engineer. He must present increasing evidence of high professional attitudes and concerns. He must have lofty objectives while performing his work in admirable fashion worthy of note. He must look upon standardization as a force to the service of all. Then he will perform professionally and gain recognition on all sides.

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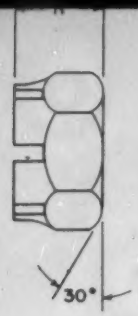
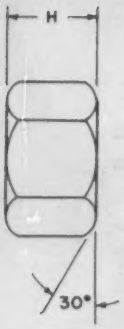
Mr Moore is Assistant Professor of Industrial Management at Massachusetts Institute of Technology where he teaches a full-term course in industrial standardization.



UP-TO-DATE!

Dimensional standards for

Square and Hexagon Bolts and Nuts

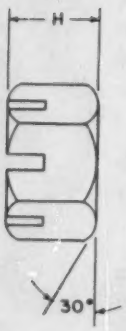


B18.2-1955

$1.25

prepared by Sectional Committee B18 sponsored by the Society of Automotive Engineers and The American Society of Mechanical Engineers.

This 1955 edition removes inconsistencies, improves length of tolerances for heavy bolts, clarifies text. Bold face type shows Unified dimensions.

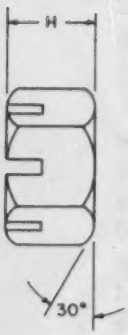


What the Standard Contains—

Square and Hexagon Bolts—nominal size or basic major diameter of thread; body diameter; width across flats; width across corners; height; radius of fillet.

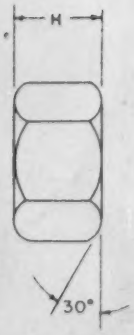
Lag Bolts—diameter of bolt; threads per inch; thread dimensions; width across flats; width across corners; height; length of shoulder for rolled thread; radius of fillet.

Square and Hexagon Nuts—nominal size or basic major diameter of thread; width across flats; width across corners; thickness. *Also*, for slotted nuts, width and depth of slot; for castle nuts, radius of fillet and diameter of cylindrical part.



Appendices—(1) Wrench openings; (2) Formulas for dimensions of bolt, cap screw, and set screw heads; and formulas for dimensions of nuts; (3) Thread runout sleeve gage.

DOES NOT CONTAIN dimensions for hexagon cap screws and square head set screws. These, and dimensions for slotted head cap screws, will be published in a separate standard later this year.



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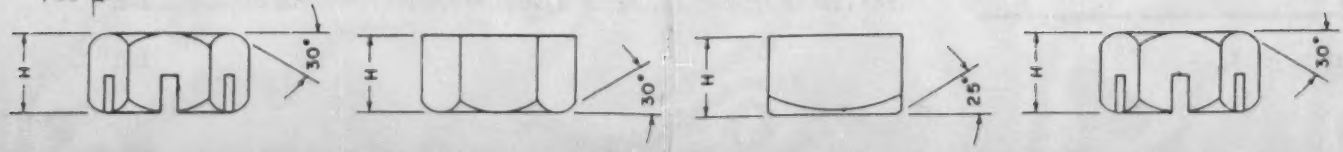
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